THE BUILDER

Incorporating ARCHITECTURE & THE BRITISH ARCHITECT

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NEWS SUMMARY

A QUESTIONNAIRE seeking information on which its cost research panel can make a detailed analysis of respective costs of two-storey and multi-storey housing has been issued by the RICS. p. 317

THE LCC contemplate revision of the London Building Acts and by-laws. Drainage by-laws are at present being revised and single-stack plumbing may become permissible without special approval. p. 320

THE OPERATIVES' CLAIM for a further 4d. addition to the standard wage rate has been rejected by the employers. p. 320

SCHOOL BUILDING COSTS are dropping, Birmingham education committee is told. p. 320

A RUSSIAN SYSTEM of controlling tower cranes from the ground is described. p. 320

A WATERPROOFED CEMENT will shortly be placed on the market. p. 342

NAIROBI (KENYA) TOWN COUNCIL is to spend nearly £10m. within the next six years on housing, roads and water services. p. 343

PRINCIPAL CONTENTS

ILLUSTRATIONS

	PAGE
CONGREGATIONAL CHURCH HALL, IPSWICH. By Johns, Slater and Haward	301
BOYS' COMPREHENSIVE SCHOOL, LEEDS. By Charles Pike, FRIBA	306
GRANDSTAND, CARDIFF ARMS PARK. By W. S. Atkins and Partners	309
'UNICORN' SYSTEM OF CONSTRUCTION. By Morrison and Partners	311

ARTICLES

CORRESPONDENCE	305
ARCHITECTURAL DESIGN AND THE STUDENT: Sir Hugh Casson's 'Crit' at the RIBA	308
COMPETITION NEWS	310
RIBA EXAMINATION RESULTS	316
BUILDING COST RESEARCH: RICS Questionnaire	317
COMMONWEALTH SCHOOLS OF ARCHITECTURE: London Exhibition	318
BUILDING IN THE CITY	319
WAGE CLAIM REJECTED	320
HOUSING IN FRANCE	323
PLANT AND MATERIALS	324
PROBLEMS IN RURAL PLANNING: A Paper at the RICS	326
PRESTRESSED CONCRETE IN THE NETHERLANDS: Recent Progress Reviewed	328
RAMMED EARTH AS A BUILDING MATERIAL	330
PROSPECT FOR PREFABRICATED PLUMBING INSTALLATIONS	331
IN PARLIAMENT	333
PRICES OF MATERIALS	336
RATES OF WAGES	339
WATERPROOFED CEMENT: A Significant New Product	342
OVERSEAS BUILDING	343
SCOTTISH BUILDER	344
FUTURE CONSTRUCTION	345

RURAL PLANNING

THE problems of urban planning due to the growth of population and industry—traffic congestion, the housing shortage, suburban sprawl, the need for central redevelopment, for new and expanded towns, for the avoidance of conurbations by green belts, and so on and so forth—loom so large in the public mind that the problems of the rural areas are apt to be overlooked or underestimated by the townsman. It is salutary to have them brought prominently into the open, as they were by Mr. Robert L. Stirling in the thoughtful and constructive paper which he read at a recent meeting of the RICS. (Some extracts from it are given on page 326.)

In a small, densely populated and highly industrialised island such as ours the preservationist attitude towards the countryside is natural and proper, but it should not—indeed, must not—be the only one, for, as Mr. Stirling pointed out, the 'pleasant prospects' conceal social and economic problems, varying in character and degree, but all needing a constructive and energetic approach.

The problems of what may be called the suburban rural areas adjacent to and beyond the green belts, with their largely dormitory towns and even their villages ever tending to expand, provide a striking contrast to those found in the true countryside 'beyond the reach of any urban or industrial influence.' Here the ancient physical pattern, including the small town and the remote village, still survives despite the changed social and economic conditions, but the life is ebbing away from it. In his own county, Mr. Stirling said, during the past 30 years three-quarters of the area in rural parishes has shown an absolute decrease in population, the most serious aspect of which is the decline in farm labour owing to the higher wages obtainable in the towns. Families are leaving the isolated cottages and people in the small hamlets are moving to larger villages with their better services and the opportunities for a fuller social life.

Mr. Stirling saw little hope of stopping this drift by establishing small factories in the remoter countryside and felt that in these areas we must reconcile ourselves to a restriction of employment opportunities to the minor trades and services required by the agricultural community. Plans, he suggested, should aim at maintaining the population at about its present level and preventing further decline, which means reshaping the pattern of villages and the concentration of major services in a selected few. Coming from an expert of wide experience these constructive suggestions deserve and will no doubt receive careful consideration. The success of such a policy obviously depends upon its wide acceptance by the many authorities concerned.

The problems of the countryside cannot be separated from those of the towns, nor indeed from national policy itself. We are irrevocably committed to a predominantly industrial economy, but it is obvious that this small island cannot expand its factories and population indefinitely. Owing to the continually increasing efficiency of methods of production there may be no foreseeable limit to our industrial development, but there must surely be an optimum level of population, and that may have been reached already, if not passed. It may well be, therefore, that the national policy of the future might be to encourage large-scale emigration to the countries of the Commonwealth which, so far as one can judge, will be glad to receive it for a long time to come.

The population problem solved and the industrial future assured, so far as it can be, by fewer workers, the problems of the countryside, in so far as they relate to the absorption of agricultural land by building development, should no longer persist. We might, indeed, see the process reversed and land no longer required for industry and housing returned to agriculture and country pursuits generally. To our hard-pressed planners it must be an enticing prospect.

Notes of the Week

'The Students' Teaspoonful'

WHAT he referred to as 'a teaspoonful of advice to students' was given at the RIBA last week by Sir Hugh Casson in his role as critic of the entries for the current RIBA prizes and studentships. A miserably wet night did not prevent a full attendance that overflowed into the ante-room of the Henry Jarvis hall, and if the audience, as he suggested, was a captive one, then it was rendered so only by the fascination of hearing the critic build his remarkable verbal card-castle on the excellent foundation laid by the President's own address.

Sir Hugh mixes a good critical salad; there is the vinegar of astringent comment and the salt and pepper of wit to taste, but any sting is removed by the right quantity of Samaritan oil. Casson's irrepressible wit on this occasion did him less harm than it has done at other times when chuckles caused by an inimitable delivery have sometimes obscured a real profundity of thought, a quality which is very evident in the introductory passages (reprinted elsewhere in this issue) which preceded his comments on the individual entries. But nothing that the critic could say disguised the fact that the designs submitted were, by and large, a poor lot. Perhaps they reflect the indecision which afflicts the whole state of architectural design in this country, a condition which affects most of our schools. Perhaps this indecision produces the 'feeling of sadness' which, said Sir Hugh, he detected at student conferences. If this is so, the student can hardly be blamed for it: his elders must make up their minds on where architectural education really stands and give him a lead.

☆ ☆ ☆

A side issue, but one of some interest, was the by-battle which developed between Casson and R. E. Enthoven on the employment of stone for altars. If, said Mr. Enthoven, Sir Hugh was right in condemning the number of entries for the prizes which seemed to have stone altars as not being allowed by the Church of England, then he (Enthoven) could only say that he had designed at least one which had been dedicated by the Bishop of London. To which Casson replied that either Enthoven had got away with something or else he had a waiver. 'You are not really allowed to have it. I have very good authority for saying so,' he added. The 'good authority' may well have been the Hon. Secretary, RIBA (Mr. Basil Spence), who was sitting next to Sir Hugh. What do the pundits say?

Industrial Psychology

THE Department of Scientific and Industrial Research has agreed to make an annual grant to the National Institute of Industrial Psychology for the next three years toward the cost of its programme of research. The conditions resemble those attached to the grants made by the Department to the Industrial Research Associations in that the grant, up to a maximum of £8,000 a year, is related to the amount of grant earning income in the form of membership subscriptions and special contributions toward the general research programme which the Institute can raise from industry. In view of the importance of human factors in productivity, the Department has in recent years extended its interest to the scientific study of human as well as technical problems; the new grant offers to the Institute the opportunity of developing the collaborative research approach which the experience of the Industrial Research Associations in many industries has demonstrated to be so fruitful.

The Institute was founded in 1921 in order to increase scientific knowledge of the factors bearing on the health, happiness and effectiveness of people at work. Its activities are of three kinds, the dissemination of information, sponsored research and advisory work, and research on topics of interest to all industry and concerned with the basic problems of people at work. With this new recognition of the value of its work and the prospect of additional support from industry which it offers, the Institute is planning a more comprehensive programme of research than has hitherto been possible.

Canopies for Canapés

A MOST PLEASANT 'annual' is the party which Arthur Kenyon and his partners give to meet their friends. This year the design motif for decorations was Mediterranean, and gay little canopies at intervals round the main office sheltered 'markets' for fish, fruit, meat, patisserie —all the canapés in fact. Guests found themselves oscillating between champagne at one end of the studio and hot punch at the other. Incidental intelligence picked up on one's travels: 'I have finished with smog' (Sir Hugh Beaver); 'I cannot play a note' (Mr. Lovett Gill, architect and viola maker); 'Atomic energy for the moment is no use except for destruction' (Sir E. Rock Carling, the surgeon). Pleasant, indeed, to find an architectural party where no one talks architecture. This one was a great success.

Gainsborough Appeal

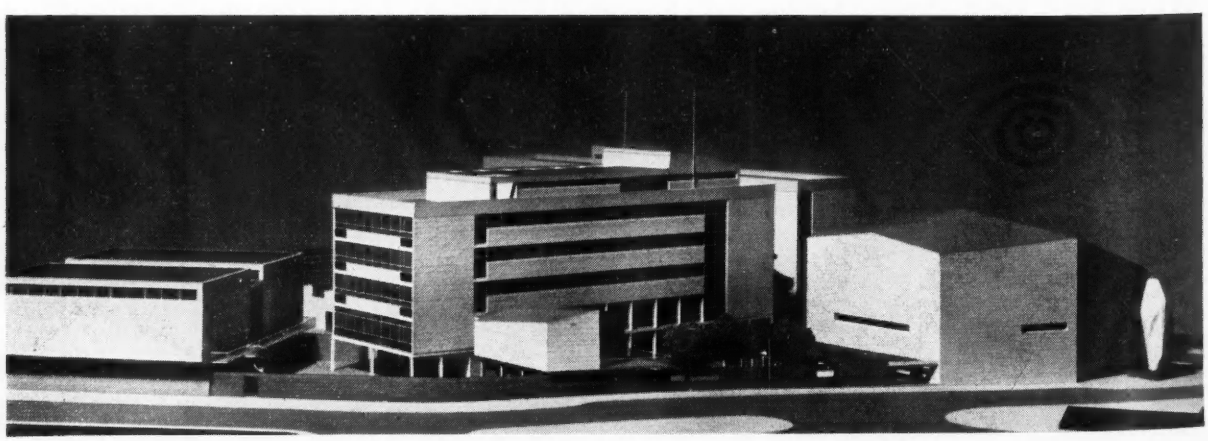
SUDBURY CORPORATION are sponsoring an appeal for £20,000 to enable them to buy the house where Thomas Gainsborough was born in 1727. It is proposed to adapt it as an art centre with space for exhibitions as a permanent memorial to the famous English artist.

'World's Tallest Building'

IT IS reported from Switzerland that plans are being studied in Lausanne for 'the highest building in the world.'

It is a 1,815-ft. 'needle,' to be known as the Sarrasin Needle, after its designer, and is planned as part of the Swiss national exhibition to be held in Lausanne in 1964.

The 'needle' is planned to have a 15-storey base carrying a 1,300-ft. slender cone of steel and concrete expanding into an observation platform at the top. The point will continue up another 330 ft.



TECHNICAL COLLEGE FOR BATH.—The Bath City Council are authorised by the Minister of Education to start work this year on a new technical college on a site in the centre of the city. Architect: Frederick Gibberd, CBE, FRIBA. This view of the model shows, left to right, the gymnasium block; a six-storey general-purpose building containing students' and staff accommodation, library, studios and classrooms; and the assembly hall with a large sculptural group on the corner of James-street West and Avon-street

From the east

CONGREGATIONAL CHURCH HALL,

Castle Hill Estate, Ipswich

Architects: JOHNS, SLATER & HAWARD

Consulting Engineer: FELIX J. SAMUELY

Quantity Surveyors: CASTON & PORRITT

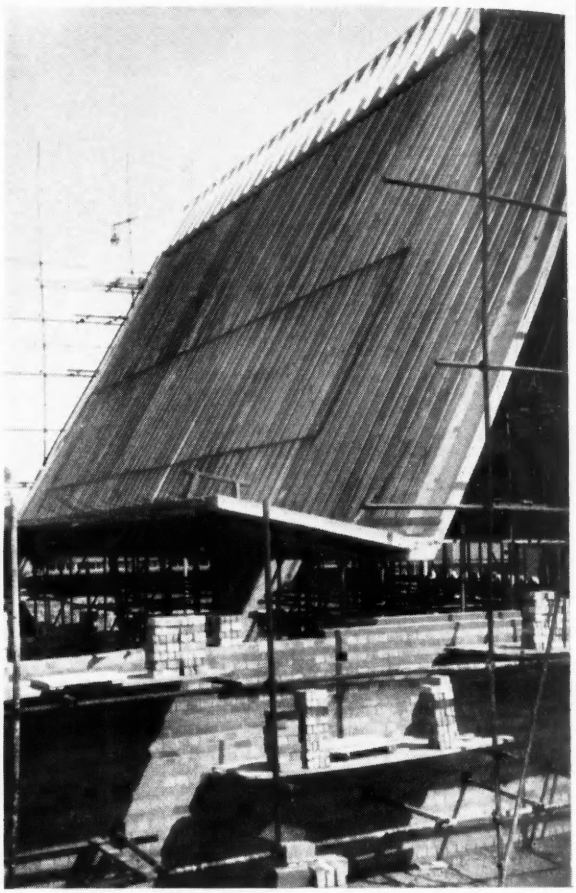
Builders: GEORGE A. KENNEY & Son., Ltd.

THIS new church hall stands on a site sloping from north-east to south-west. In front, a wide grass verge stretches down to the road. The main part of the building consists of a hall 50 ft. by 47 ft. beyond which, at the west end, projects a 15 ft. deep stage. The whole is covered by a steeply-pitched folded slab concrete roof with an overall length of 65 ft. To the south of the main hall, at the west end, are the main entrance and vestibule, together with ancillary rooms consisting of a vestry, classroom, kitchen, boiler room and toilet accommodation. To the north of the main hall, again at the west end, is a second classroom. At the east end is the sanctuary, which projects 10 ft. from the body of the building.

The roof is supported on two transverse reinforced concrete frames, one at the extreme east end, the other 15 ft. in from the west end. It spans 50 ft. from the former to the latter frame, over which it is continuous, and then cantilevers for the rest of its length. The cantilever covers the stage. At the extreme west end is another frame, unconnected with the roof, which will help support the floor of an organ loft (above the stage) projected for a later date. The folded concrete slab itself consists of two main planes inclined at 60 degrees

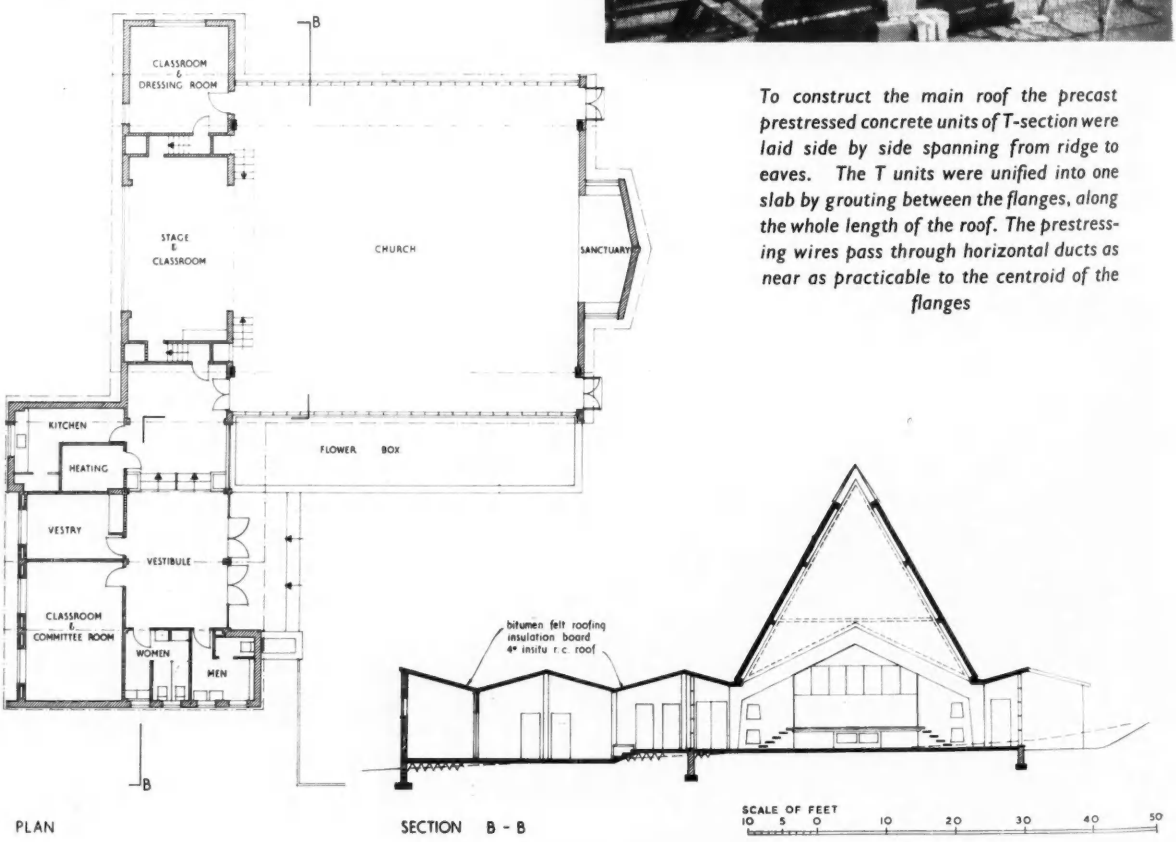
to the horizontal, forming a pitched roof with its ridge 31 ft. above the eaves and 40 ft. from the floor. At the eaves, *in situ* concrete wings cantilever slightly upwards for 7 ft. on either side. Structurally the wings act as a continuation of the folded slab, and serve to reduce the stresses in the main planes. The main planes are constructed with T-section precast concrete units 35 ft. long by 2 ft. by 1 ft. nominal size, each unit having four wires prestressed individually on the P.S.C. One-Wire system. Diaphragms, which provide ducts for the longitudinal prestressing of the roof, are cast into these units at three points. The webs of the T units and the diaphragms divide the underside of the roof into rectangular panels. The three lower bays are soffited with insulation board; the uppermost, smaller than the others, is glazed. The exterior is battened, lined with glass wool mattress, counterbattened and covered with asbestos cement slates.

The cantilevered wings are reinforced with mild steel which laps with the steel projecting from the T units of the main roof. They taper in section from 8 in. to 4 in. and longitudinal prestressing is introduced



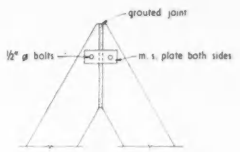
To construct the main roof the precast prestressed concrete units of T-section were laid side by side spanning from ridge to eaves. The T units were unified into one slab by grouting between the flanges, along the whole length of the roof. The prestressing wires pass through horizontal ducts as near as practicable to the centroid of the flanges

PLAN & SECTION. Scale: 1 in.=24 ft.

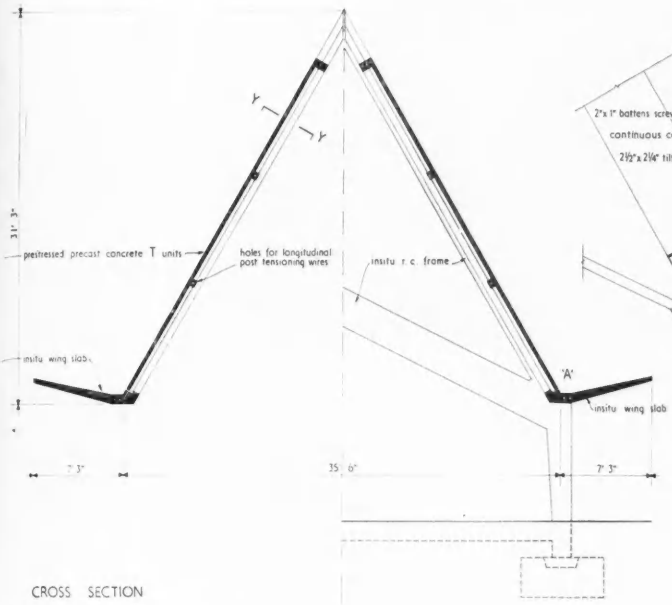


PLAN

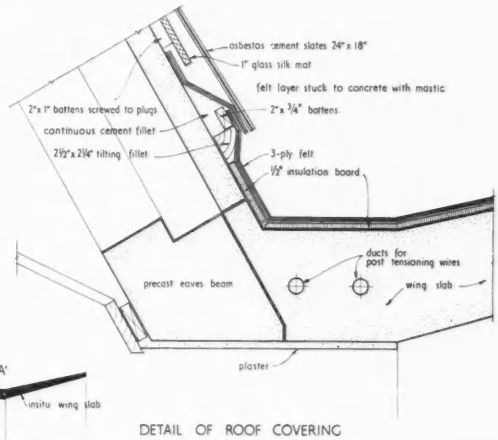
SECTION B - B



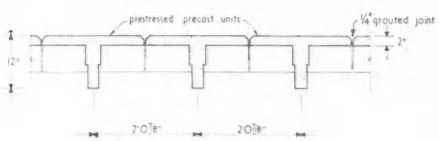
DETAIL AT RIDGE



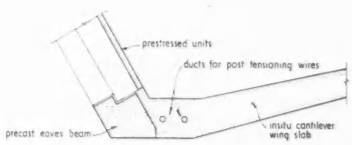
CROSS SECTION


asbestos cement slates 24" x 18"
1" glass silk mat
felt layer stuck to concrete with mastic
2" x ¾" battens
2" x 1" battens screwed to plugs
continuous cement fillet
2½" x 2¼" tilting fillet
3-ply felt
½" insulation board
ducts for post tensioning wires
precast eaves beam
wing slab
plaster

DETAIL OF ROOF COVERING



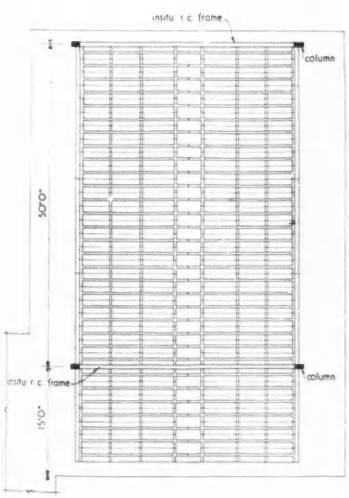
SECTION Y – Y



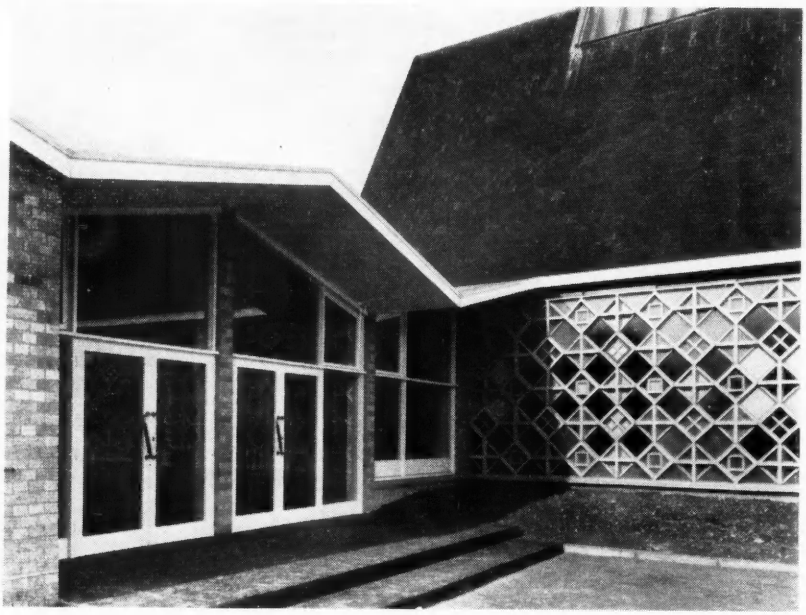
DETAIL AT 'A'

CONSTRUCTIONAL DETAILS

The stage



KEY PLAN - looking up -



Church Hall, Ipswich

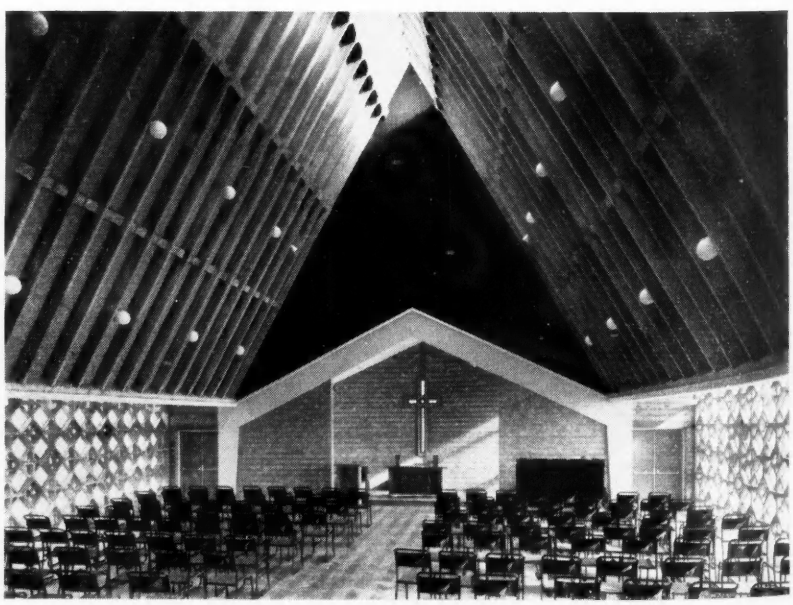
A special feature of the building is the glazed tracery which is formed of precast concrete units, 2 ft. by 2 ft. by 9 in. thick, joined together by means of slate dowels and mortar joints. The units are cast in three different shapes, erected and inset with coloured and plain glass to form a symmetrical repeated pattern

in the eaves by two cables on the Gifford-Udall-CCL system of post-tensioning.

Ancillary rooms have low-pitched *in-situ* concrete roofs also of folded slab construction. The sanctuary has a similar roof, with a rather steeper pitch. All these subsidiary roofs are covered with three layers of roofing felt.

The west wall of the main church is plastered, and the upper part of the gable is lined with acoustic fibrous panels which have slotted holes and are backed with vermiculite. The main gable ends are of brick. External surfaces of the church are: a slate grey roof, light brown brick gable ends and grey doors relieved only by white bargeboards, window frames and downpipes. Inside colours and finishes are designed to give an impression of light, air and spaciousness. The white and off-white of main frames, organ grille, beams and concrete tracery predominate. A patch of bright colour is added by the yellow walls of the vestibule. The gable panel is in dark green, and the natural brown of the ceiling insulation boards provide the necessary contrast.

The Altar Cross in the sanctuary is a cruciform window in a precast concrete frame which projects slightly into the church. The Cross which stands high above the sanctuary on top of the roof ridge, at the east end of the church, is also of concrete



Subcontractors & Suppliers :—

Manufacture of concrete roof units, Liverpool Artificial Stone Co., Ltd.; heating installation, Weatherfoil Heating Systems, Ltd.; electrical installation, Mann Egerton and Co., Ltd.; flooring, Hollis Bros., Ltd.; 'Accotile' flooring, Wm. Brown and Co. (Ipswich), Ltd.; roofing, Standard Flat Roofing Co., Ltd.; patent glazing, Crittall Manufacturing Co., Ltd.; sanitary fittings, E. L. Hunt, Ltd.; ironmongery, Nettlefold and Moser, Ltd.; suspended ceilings, Wm. Brown and Co. (Ipswich), Ltd.; manufacture of concrete tracery, Saunders and Co. (Ipswich), Ltd.

CORRESPONDENCE

RIBA Contract and the Health Service

To the Editor of *The Builder*

SIR,—I understand that when the former Minister of Health wrote to hospital authorities last year about the review of the RIBA forms of contract he asked them to bear in mind 'the special requirements of the Hospital service.' I should be pleased if you, or any of your readers, or even the new Minister, could say what these 'special requirements' might be in so far as they could alter the present relationships between the employer, the contractor, the architect and the surveyor under these contracts. It is difficult to see how the building of a new ward unit differs from the building of a new school so far as the parties to the contract are concerned.

I suggest in the light of personal experience, that in fact there are no 'special circumstances' at all, and that these words cover an attempt by administrators (secretarial and financial) to gain 'control' — word of rich reward! — over technical and professional staff and associates.

But perhaps I am completely wrong. The Minister of Health himself may well be aware of this attempt and wishes in his hospitals edition of the revised RIBA forms to make it quite clear that one of the 'special requirements' of the Health Service is that it shall be a success and that it cannot be unless the architect and the surveyor are free to carry out their professional duties without lay interference. I hope all connected with the service will see that he does so.

'MOST PATIENT.'

Quantity Surveying in USA

To the Editor of *The Builder*

SIR,—Mr. John Allan suggests (your issue of January 25) that my experience of US building practice does not agree with the Bossom Report (Methods of Building in the USA, 1944) and the Productivity Team Report on Building (1949). The Bossom Report rightly praises the US practice of settling the detailed design before the tender stage, but that was not the subject of my letter. On the subject of tendering procedure, the Bossom Report lists advantages and disadvantages of both the American and British systems, but says nothing that vitiates my claim that it is better for the quantities to be taken off by one quantity surveyor acting for the client than by each tenderer for himself.

The Productivity Team Report's section on tendering procedure provides ample evidence to support this view. For instance, it mentions that an allowance for possible errors in measurement is frequently included by US tenderers who take off their own quantities. The team noted one case where a sum calculated at five per cent. on the estimated value of the work was included for this purpose. If Mr. Allan had recently referred to this report, he should not have been surprised at my mentioning an American contractor who generally sent out between 350 and 500 inquiries to subcontractors on one job. The Productivity Team refers to 'several hundred' inquiries being sent to sub-contractors.

Mr. Allan suggests that the US practice of encouraging keen competition for subcontract work helps to offset the wastefulness of having all tenderers taking off their own quantities. This may well be correct, but why not cut out the waste and leave the client the benefit of the competition? Already there are a number of firms of quantity surveyors in the US who take off quantities for tenders. I have before me a Bill prepared by one of these firms. It contains terse descriptions intended to be read by the estimator in conjunction with the drawings and specification. Obviously it would have been an economy if this had been supplied by the client to each of the tenderers instead of each tenderer either buying a bill of quantities from a quantity surveyor or having one prepared in his own office.

We have a great deal to learn from US tendering procedure—the Bossom Report's recommendation that complete working drawings and specification should be supplied to tenderers has not received wide acceptance and the Productivity Team's suggestion that our system might be simplified has not borne fruit yet—but equally the Americans can learn from us, and they will certainly benefit from developing the rôle of the independent quantity surveyor.

B. LIPPMANN.

17, Gordons-way, Oxted, Surrey.

Artists' Imagination

To the Editor of *The Builder*

SIR,—Mr. Howling's letter in a recent number, on the imaginary features put into some of his drawings by the late A. C. Conrade, reminds me that some years ago I showed to a resident of Shere in Surrey, a water-colour of that village by another eminent artist, Mr. A. C. Fare, who is happily still with us. My friend was delighted with it—until he noticed that the artist had replaced with a hedge a disreputable corrugated-iron shed that existed opposite the church. 'I would,' he said, 'have liked the picture in my sitting-room, but I don't want a fake.'

I am the fortunate owner of a water-colour of Chartres Cathedral by the late A. C. Conrade in which there are people lounging in doorways and at windows. I doubt whether they were there when the drawing was made, but they are delightful features that enhance the beauty of the composition, and this is what pleases the eye. I also have a pen-and-ink drawing by Conrade of King Arthur in full armour—entirely imaginary, but none the less a thing of beauty.

H. L. CHILDE.

Riverhead, Kent.

'Tidey Street!'

Standard Draft Bills

To the Editor of *The Builder*

SIR,—With reference to the article by Mr. H. M. Stafford (*The Builder*, January 11) on possible future development of the standard draft bill of quantities, I would like to make the following comments:

If, as your contributor states, 'the master set is largely static in development, etc.,' it would seem that the inference here is that the architects involved are co-operating in designing their buildings (as far as materials are concerned at least) to suit the standard bill—rather an unusual state of affairs to say the least, or is design becoming static, too? Also, I should be interested to hear how this method could be adapted to suit the varied types of work encountered in private practice, particularly regarding extensive alteration works.

Further, your contributor states that the person billing 'merely copies the standard descriptions'; all very simple, I agree, particularly for the person editing, but surely the tendency here is for the worker-up to make the description suit the standard bill, which description may be quite different from the one that the taker-off has obtained from the drawings or by discussion with the architect.

ERIC POWNALL.

Stockport, Cheshire.

A Competition for Carpentry

To the Editor of *The Builder*

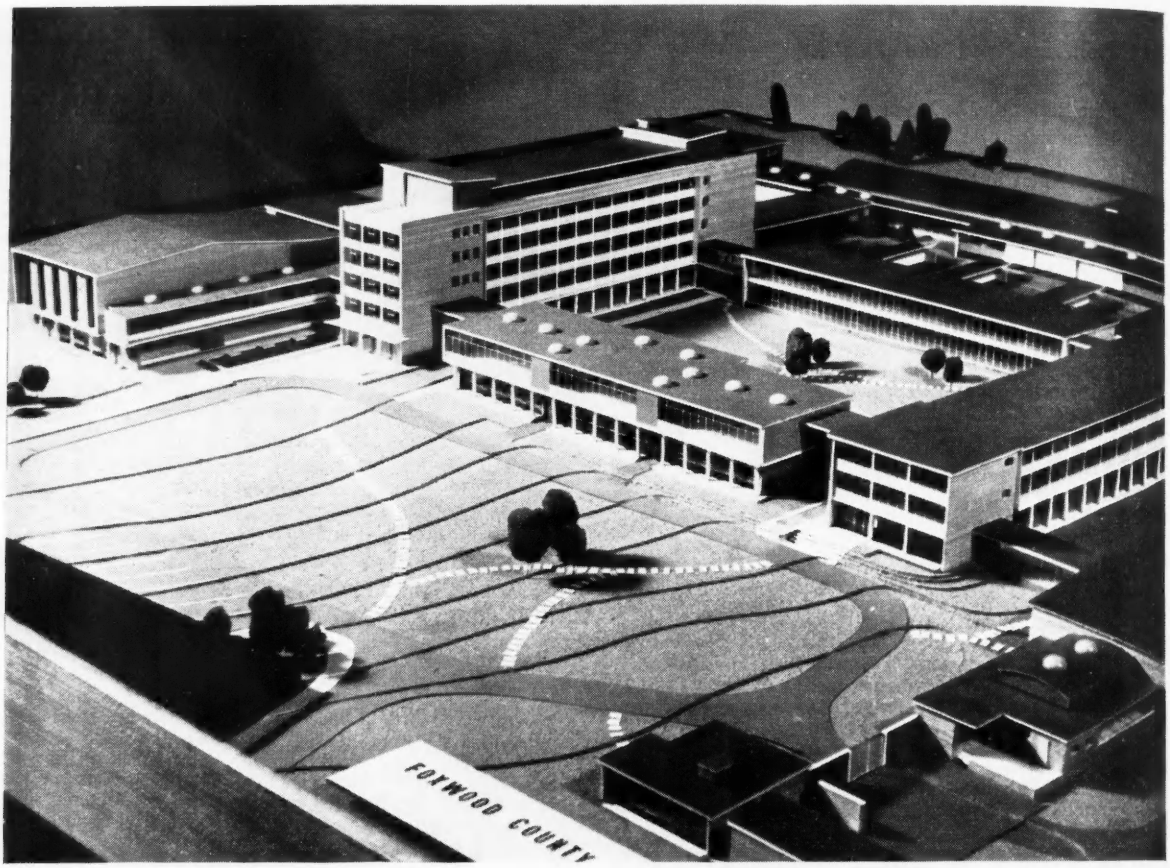
SIR,—In order to maintain its traditionally high standard of craftsmanship in carpentry and joinery the Worshipful Company of Carpenters of London is instituting an annual competition for an advanced piece of work open to any craftsman in the United Kingdom and Australia. The general plan is that the IBICC will, through its Boards of Examiners in this country and Australia, co-operate with the Carpenters' Company in receiving and judging works sent in for competition to various provincial centres. The best piece of work at each centre will then be forwarded to London for final adjudication and award.

Full particulars of the competition will be published in May and June next in the Press and sent to all Building Colleges in the United Kingdom.

H. C. OSBORNE,

Clerk, the Carpenters' Company.

28, Austin Friars, EC2.



From the south

PROJECT :

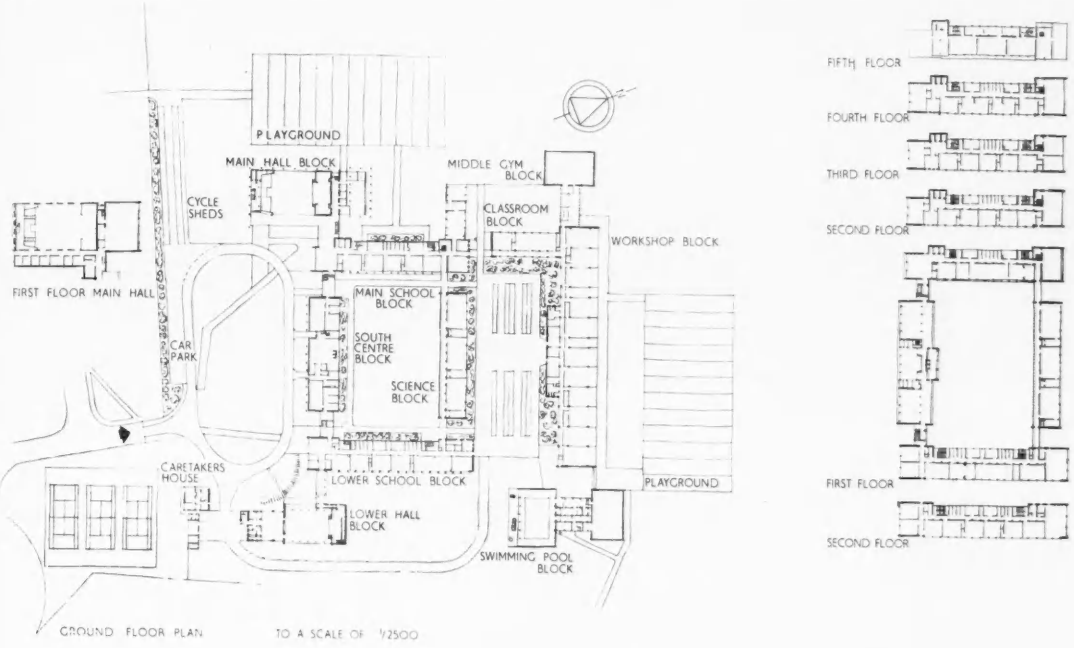
BOYS' COMPREHENSIVE SCHOOL, Leeds

Architect : CHARLES PIKE, FRIBA
Consultants, Structural : OVE ARUP & Partners
Heating & Mechanical Services : EDWARD PEARCE & Partners
Quantity Surveyors : SELBY & SANDERS
Builders : F. SHEPHERD & Son, Ltd.

FOXWOOD County Secondary School now being erected in the Seacroft housing estate, is a form of comprehensive school for secondary education of 1,780 boys. The architect was also responsible for the design of the London County Council's first comprehensive school at Kidbrooke. The Leeds City Education Officer and the City Architect, R. A. H. Livett, OBE, ARIBA, who instructed the architect, required a building based on sub-division into age groups of two years in separate blocks which could be operated as separate units or collectively according to educational developments. In addition, three gymnasia are provided with changing accommodation which can also be used for games. The site, about 37 acres, falls away on the west side, and rises gently towards the north. The buildings have been placed in the south-east section of the grounds, adjacent to the points of entry.

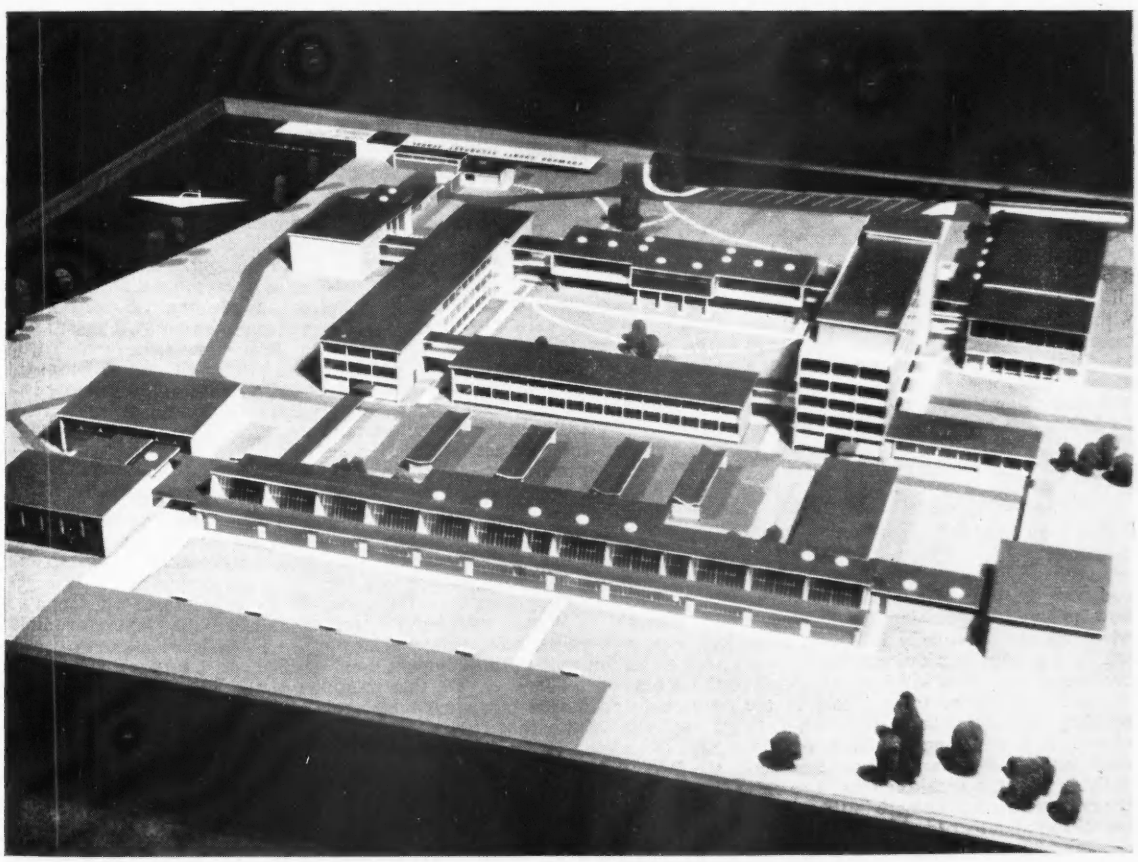
The plan of the buildings is, in effect, a group of various blocks formed round a large open courtyard, about 200 ft. by 130 ft., with a smaller court for the workshop area. The buildings have an RC frame, solid floors, brick walls and 'Muroglaze' panels beneath windows. It is intended that the facing materials will be a warm yellow brick for the solid walls, with steel windows and coloured tiles to the structural columns. The elevational treatment in general will reflect the lightness of the building, and colour will be used, when appropriate, for emphasis. Internal finishes include plastered walls with extensive use of colour. Painted lockers and fitments. Linoleum flooring to patterns in corridors and patent tiles of the Accotile variety, in classrooms. The staff rooms and small halls will have polished hardwood block floors. The large halls will have hardwood strip flooring.

Heating will be by oil-fired boilers serving hot-water radiators made to fit the wall space under windows; lighting will be mainly Tungsten, while fluorescent lighting will be confined to practical rooms and workshops. The total area of the building is approximately 136,000 square feet, which is in accordance with the Ministry of Education's requirements. The total cost of the building contract now being carried out is about £550,000.



FLOOR PLANS, the swimming bath is not now to be built

A view of the model, from the north



Architectural Design and the Student

SIR HUGH CASSON DELIVERS THE RIBA 'CRIT'

Sir Hugh Casson was in sparkling form when, on February 5, he delivered the criticism of the designs submitted for the RIBA Prizes and Studentships, 1957. The prize list was published in our issue of January 11, and the introductory remarks of the President RIBA (Mr. Kenneth M. B. Cross, MA) in our issue of February 8. Space does not allow reprinting Sir Hugh's comments on the individual entries, but from his introduction we take the following extracts:

I NEED hardly say (said Sir Hugh) that it is a most pleasurable honour for me to be asked to be your critic this year, particularly because it is almost 50 years to a day that the task was undertaken by Mr. A. W. S. Cross, the father of our President. I need hardly say he made a pretty smart job of it, too. Like many, I suspect, of those who have since followed him and preceded me in this ordeal, I could not resist looking up what my predecessors said to the prizewinners of their day, 10, 20 and 50 years ago, and much the same thing, of course, it proved to be from everybody. But there is one difference — the confidence with which they said it steadily decreased.

In 1906, for instance, John Simpson exercised some competent gamesmanship by starting with a quotation (in French) from Balzac and closing with one from Ben Jonson, and chucking in a few ploy words like Systyle Doric in the middle, which I personally never heard of. In 1936 I found a gruesome pleasure in reading the urbane Mr. Pakington reprimanding Hubert Bennett, the present Architect to the County of London, for having too ambitious a programme, while Arthur Ling (now of Coventry) was rebuked for taking too much trouble, they said, in drawing rubble infilling and omitting vital joints. 'Mr. Ling,' said the critics, 'is clearly much more interested in drawing than in research.' In 1947 Mr. Minoprio commended Bossom winner David Aberdeen for his thesis on, believe it or not, Paris Hotels—fatal moment for all those pre-TUC days on the Left Bank with hot and cold running chambermaids! All critics, however, took care to point out that they were but the mouthpieces of the distinguished juries, and that while they were willing to take credit for the nicer and wittier remarks, those less pleasant or more clumsily phrased were the work of the jurors!

The Educational Dilemma

Anyone concerned today with architectural education — whether at the giving or receiving end — is obviously dissatisfied with the state of affairs. I don't see how he could be anything but dissatisfied when we are all equally in doubt as to which way our professional paths will eventually lead. You will hear it said that architects should be trained to join the building industry, to take part much more closely in developing building components and in site management; or alternatively that the architect should remain the creative man. If you are in that sort of indecision about where you are going you are going to train each other inadequately for either. And so we find quite rightly that the methods of architectural education are blasted with criticism from different sides. You may have read in a very provocative and lively article by Mr. Ritter in a recent issue of that very lively and provocative paper, 'The Architects' Journal,' that to impart knowledge is mistaken and to respect it is archaic. It sounds frightfully silly. I thought, 'Well, yes and no. Some students yes; some students no.' Clear thinking and enthusiasm are far better qualifications for teaching than practical experience. I should say no teacher is any good without enthusiasm. Whether clear thinking matters quite so much I am not sure. Practical experience I do find a lot of students would not mind having in their teachers.

Attracting a Following

You will hear the contrary view argued. 'Where,' cry the critics, 'is the creative imagination of contemporary youth? Are we to be lashed for ever to the tails of the three great masters?' Or is it four? They are inclined to forget that architects, like anybody else, follow anything that moves. And if in this age of the walking dead (how lucky, someone remarked of our profession the other day, architects are, for even when they're dead it doesn't show) only three—or even 20—artists are on the move, inevitably they will attract a following.

'Where,' cry the employing architects, 'is the young man who, while not devoid of the creative urge, can safely be trusted to draw a half-inch detail of almost anything?' He never existed. Never! Never! And he never will, because there is no alternative as far as I can see whatsoever to personal and painful experience that takes years to acquire, and fortunately it is usually undertaken at someone else's expense. Practical experience, in fact, is something no school, no teacher and no system of education can ever impart.

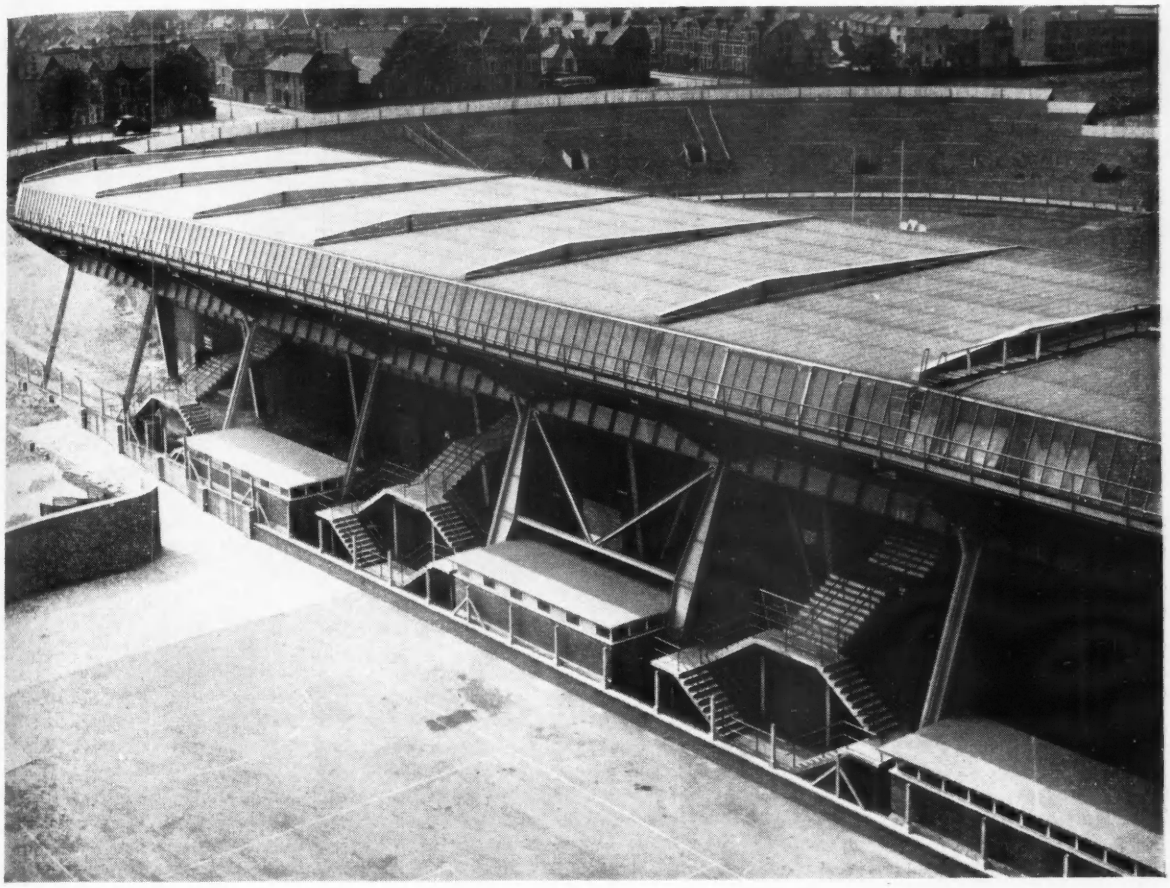
Then you get the kind of students who grow to men like your President and myself, and who say 'Who are you to set yourselves up in judgment on the work of others?' 'Who,' counter-cry the students and young men, 'are you anyway to set yourself up in judgment upon the work of others?' To this more personal and indeed more justifiable cry I can only answer that I am the unpaid hack (Randolph Churchill please note) of the RIBA, and if I am to justify my impertinence in acting as critic I can only say that I am a teacher and as a teacher my aims—never achieved, I think—have been to stimulate curiosity. For the expansion of the human intellect depends almost entirely upon this quality first; second, on teaching the student, where one can, to recognise beauty (and thus to command happiness); and then—terribly important—to take pleasure in his work. Whenever I go to conferences of youth, students, I get a feeling very often of sadness. The cares of the world seem to lie too heavily on their shoulders and they do not seem to take what I would call pleasure in architecture. Third, it depends on teaching the students that one should pursue one's own craft to the best of one's own talents and ability.

And for you, the student, it's the same old stuff, I fear. Do not look at your own buildings through other people's eyes! When you are designing a building do not, for goodness sake, say what would so-and-so think if I had it published, or what would it look like published. Look at it as you see it yourself. You have to beware of second-hand opinions and second-hand visual experience; to avoid the pursuit of novelty for its own sake; to respect but not be mastered by fashion; to discuss architecture always, but to avoid arguing about *words* which are often nothing but traps; to respect the scholar but to beware of the style-snob (style remember, Perret said, is a word without a plural); finally, to respect the scientific approach but not to underestimate the power of impulse and intuition. Someone remarked that while there are very few people who can reason, all men can feel, and that is your contact with your fellows.

A few months ago in an address to the students at the Royal College of Arts, Sir Kenneth Clark played the entertaining game of imagining himself performing this same task in the thirteenth, fifteenth, seventeenth and nineteenth centuries. However different, he concluded, would be the advice handed out at these different periods of history, one thing would surely remain constant — the absolute conviction of the speaker. Happy far-off days! Indecision and timidity are the twin evil spirits of our age in architecture as in everything else. Nevertheless, in passing on the views of my colleagues and my own views, I must assume an air of firm conviction—and in truth I don't find this as difficult as I thought it might be, because frankly I enjoyed the task of sitting in on the juries and I think our decisions were right.

The Critic's Duty

Now the duty of the art critic, we are often told, is not to indulge in verbal fireworks at the expense of his victims, not to exercise hobby horses, nor to let loose bees from his bonnet, nor issue grand statements of personal philosophy, nor even to indulge in the luxury of thinking aloud. We have heard all those in the last 30 years. It is to try first to discover what it is that the artist is trying to do, and only then to judge to the best of his ability the degree of success or failure of the artist's attempt. In other words, don't criticise a man for failing to succeed in something he was not even trying to do. This, of course, sounds a great deal easier than it is, and that, I think, is why so many critics are those who are unashamedly loaded with prejudice, incur-



GRANDSTAND, Cardiff Arms Park

THE new South Stand at the Cardiff Arms Park rugby ground has made full use of modern construction techniques and materials. Welded steelwork was chosen for the main frames and aluminium alloy troughing for the roof covering, which has been laid to a fall of only 1 in 60, the end laps being sealed.

For the terracing, precast concrete units have been used. Prestressed concrete was used for the beams below ground level which connect the foundations of the main frames and take care of the horizontal thrust induced by the raking struts.

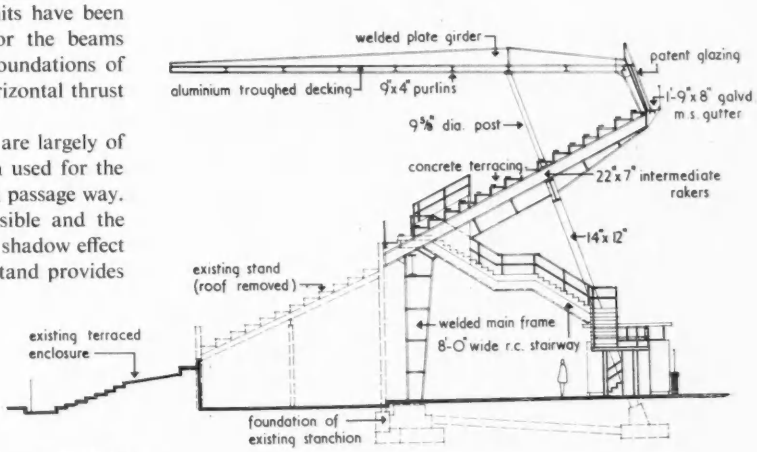
The access stairways, four in number, are largely of concrete construction, but steel has been used for the raked stringers which fly over the main passage way. The roof has been kept as low as possible and the projection has been limited to reduce the shadow effect along the south side of the pitch. The stand provides 3,368 additional seats.

Subcontractors & Suppliers :—

Foundations, stairways and latrines, Davies, Middleton and Davies, Ltd.; structural steelwork, Rees and Kirby, Ltd.; precast concrete terracing, Costain Concrete Co., Ltd.; roof decking, John Bland and Co., Ltd.; glazing, Henry Hope and Sons, Ltd.; painting, Alfred Bagnall and Sons, Ltd.; metal spraying, Metallisation, Ltd.; lighting, Booth and Bomford, Ltd.

W. S. ATKINS & Partners,
Consulting Engineers

DAVIES, MIDDLETON & DAVIES, Ltd.,
Builders



CROSS SECTION

Scale : 1 in = 24 ft.

ably subject to impulse and passion, intolerably vain, ill-informed, illogical and unfair.... You do not get justice but judgment — judgment made to the best of our joint abilities—and you can dispute it at your leisure.

In his criticism of the entries for the RIBA Intermediate Design Prize (subject: A Church in a New Town neighbourhood) Sir Hugh made the following remarks: None of the results were dull. Some of them were ingenious, a few were feverishly determined to knock us sideways (but jurymen, I may say, in competitions are chosen for resilience). To my mind all of them were failures, pretty complete failures, but not shameful.

Now, the subject is a difficult one compared with, say, a school or an industrial plant, or local authority housing, where you can get away with the current formulæ without causing either Professor Richardson or Peter Smithson to raise their eyebrows. But a parish church which is something different! Here there is no escape from aesthetic self-committal. There is no substitute for inspiration and no substitute for visual judgment. Here architecture is something more than just a correct answer to a complicated question, here sensibility to site and to surroundings, a correct assessment of atmosphere, clarity, sincerity and above all modesty, very different from timidity, are what is needed; the approach of the eye and the heart perhaps rather than that of the intellect. The architect is very uneasy in the presence of instinct, never of intellect—he regards it as untidy and suspect, poor coward that he is—and he will grasp at any straw of reasoning to keep him afloat upon its mysterious and unpredictable currents. Are we, in censoring ourselves for timidity or idleness, being unfair to students who, after all, are so far only halfway to the doom of qualification? Perhaps we are.

But back to the question of this Parish Church. Those who set the programme wisely asked for a building that would fit discreetly yet proudly within its neighbourhood, that possessed architectural quality and simplicity and would be economical to maintain. Idle hopes! Here were buildings that would be admirable Pavilions of Religion in an international exhibition, that were so bossy or demonstrative that they could only disturb or, eventually, repel their congregations with their ingenuity; here were personal monuments to architects' undying arrogance. Will we never learn to temper the arrogance which is necessary to creative activity with the humility of the artist in the presence of his art? Here were buildings that would, in the elaboration of their structure or choice of materials, break the heart of any Parish Council which was responsible for maintaining them and cost an annual fortune to maintain; and—to me an absolutely unforgivable fault—buildings that were clearly visualised as isolated exercises, whose site boundaries were those of the paper upon which they were drawn—no conception, it seemed to me, of what these buildings were going to stand in and what they were going to be surrounded by.

Vote of Thanks

DR. A. S. M. SYMONS, Principal of the Northern Polytechnic, moving a vote of thanks to the President and to Sir Hugh said, as a layman, he had been a little intrigued by some of the comments which Sir Hugh put in. He was interested, for example, to hear about the church designer who made his congregation uncomfortable; but the jury were quite clear that they were in the presence of an architect! 'I do not quite know what they mean,' said the speaker. 'Also there is the fact that a club house, with flushing cisterns at the front door, that has a flue that does not go anywhere in particular, can still win prizes. I think that shows the jurors were certainly well provided with the milk of human kindness. This has much appealed to me.'

The vote was seconded by MR. R. E. ENTHOVEN, Chairman of the Board of Architectural Education, who said that the president in his address had given a valuable and penetrating survey of the background of architectural education in this country. 'In doing so,' said Mr. Enthoven, 'he has touched on a problem of increasing importance to which Sir Hugh has also referred—how to satisfy all demands for a balanced training. Taking the long view, there is a danger that too much worrying about the vast field of technical knowledge needed to-day as a basis for immediately earning bread and butter will do harm.

'Anyone hoping to stay the course to deal significantly with architectural problems 30 years hence will find conditions will very likely differ more from those to-day than those to-day differ from 30 years ago. As a team leader and not just a team administrator one must have time to develop a capacity for reflection and intellectual insight, and it is in this that the awards made tonight given particularly for travel, post-graduate experience and study must surely have very great value.'

COMPETITION NEWS

National Opera House, Sydney

THE complete results of the world-wide architectural competition for the design of the National Opera House, Sydney, have now been received.

The first prize in the competition (premium, £A5,000) was won by Joern Utzon of Hellebaek, Denmark. The second prize (£A2,000) was won by a group of American architects, J. Marzella, L. Loschetter, W. Cunningham, W. Weissman, M. Brecher, R. Geddes and G. Qualls. Boissevain and Osmond, of Gray's Inn, London, were awarded third prize (£A1,000). The other awards are:—

Highly commended—L. P. Kollar and B. A. Korab, Australia.

Commended—Professor Walter Hamer, Germany; H. Seidler, A. G. H. Young, R. M. Parker, R. G. Fitzhardinge and R. M. Young, Australia; Otto Leitner, Germany; D. A. Brunton, B. H. Joyce, B. Mildren and J. T. Lilly, Australia; D. Cobb and W. Holzbauer, USA.

A number of other British competitors have been commended by the judges. They are: Laurence Prynn, S. W. Milburn & Partners, H. D. Krall, J. F. Metcalfe, George Subiotto, Plenderleath and Clark, R. A. Dunster and R. S. Staughton, T. Bliss and M. Le Pelley.

The assessors who judged the competition were Professor J. L. Martin, FRIBA, of Cambridge University; Eero Saarinen, Michigan, USA; Professor Henry Ingham Ashworth, Sydney University; and Cobden Parkes, New South Wales Government Architect.

The Opera House is to be built on Bennelong Point on the southern shore of Sydney harbour.

Assessors' Report

Of the winning design the assessors said: 'The drawings submitted are simple to the point of being diagrammatic. Nevertheless, as we have returned again and again to the study of these drawings we are convinced that they present a concept of an opera house which is capable of being one of the great buildings of the world.

'Because of its very originality, it is clearly a controversial design. We are, however, absolutely convinced about its merits. A massive base emphasises the character of Bennelong Point. The auditoria are arranged like Greek theatres in this rising base and are approached either underground from cars or externally along a magnificent ceremonial approach. This approach and the auditoria steps form a rising plateau in which the highest point of seating is about 40 feet above the ground. This conception solves by elimination all the complex needs of (emergency) escape which form so much dead space in a multi-storeyed building.'

The judges said that the dressing-room and rehearsal areas would need some rearrangement. The designer had envisaged moveable walls which could be raised when the weather permitted to allow the auditoria to be opened. The judges in their report stated: 'While this scheme substantially conforms to the conditions laid down, we are aware that it is open to many points of detailed criticism and a number of corrections would have to be made, but we feel that, at this stage, the general breadth of the imaginative concept is an over-riding consideration.'

Comments Recorded

The two overseas judges, who have now left Australia, recorded a discussion on their choice with Professor H. I. Ashworth, FRIBA, of the School of Architecture, Sydney University, before they left. Among the comments recorded, PROFESSOR MARTIN said that, in his opinion, the winning design was a great building and one which would work. He thought the shell vaults of the roof would give an impression of the sails of yachts.

MR. SAARINEN said he thought its outstanding feature was its total concept as one outstanding piece of art. He was impressed by the simplicity of the plan.

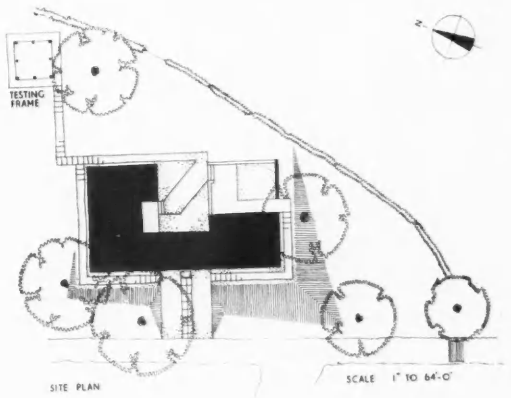
All Gothic cathedrals had used the interlocking shell vault system, but theirs had been made from stone. He said the constructural system of the winning design was in use in Italy, Brazil, Madrid and America.

'UNICORN' SYSTEM OF CONSTRUCTION

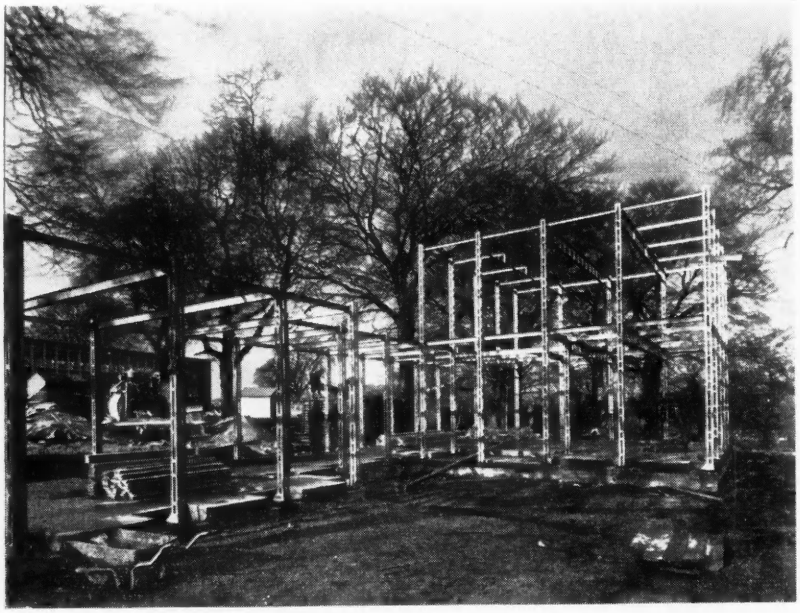
Prototype at Butterley Park, Ripley, Derbyshire

Architects :
MORRISON & Partners

Builders :
BUTTERLEY Co.



THE ' Unicorn ' system of construction has been devised by the Butterley Company in collaboration with their consultant architects in order to rationalise the complex problem of school building. The ' Unicorn ' system consists of a simple steel frame and standardised components to make up walls, floors, partitions and roof, etc. Erection is speedy and largely a ' dry ' process so that work is able to proceed in weather conditions which would prohibit more traditional methods. The roof can be fixed in position immediately the frame is erected, and the first layer of felt nailed down, so providing sheltered conditions for the remainder of the work, and for the dry storage of materials. The steel frame is suitably protected from corrosion, and



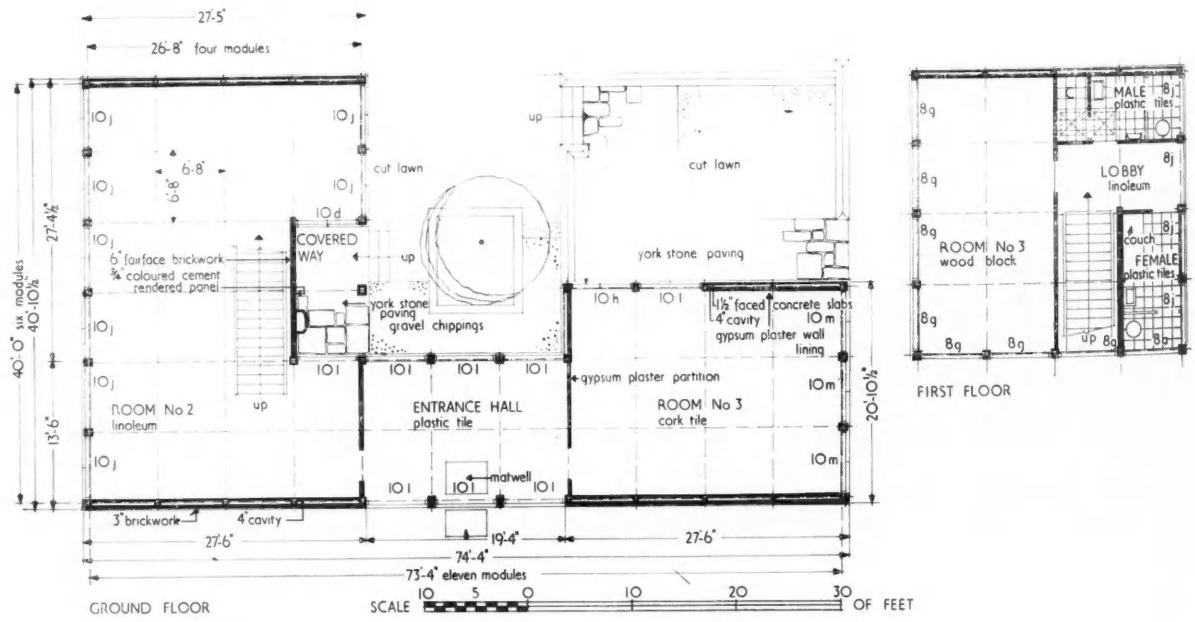
A progress photograph taken from a similar viewpoint as the picture on the opposite page

Prototype of the 'Unicorn' System of Construction, Butterley Park

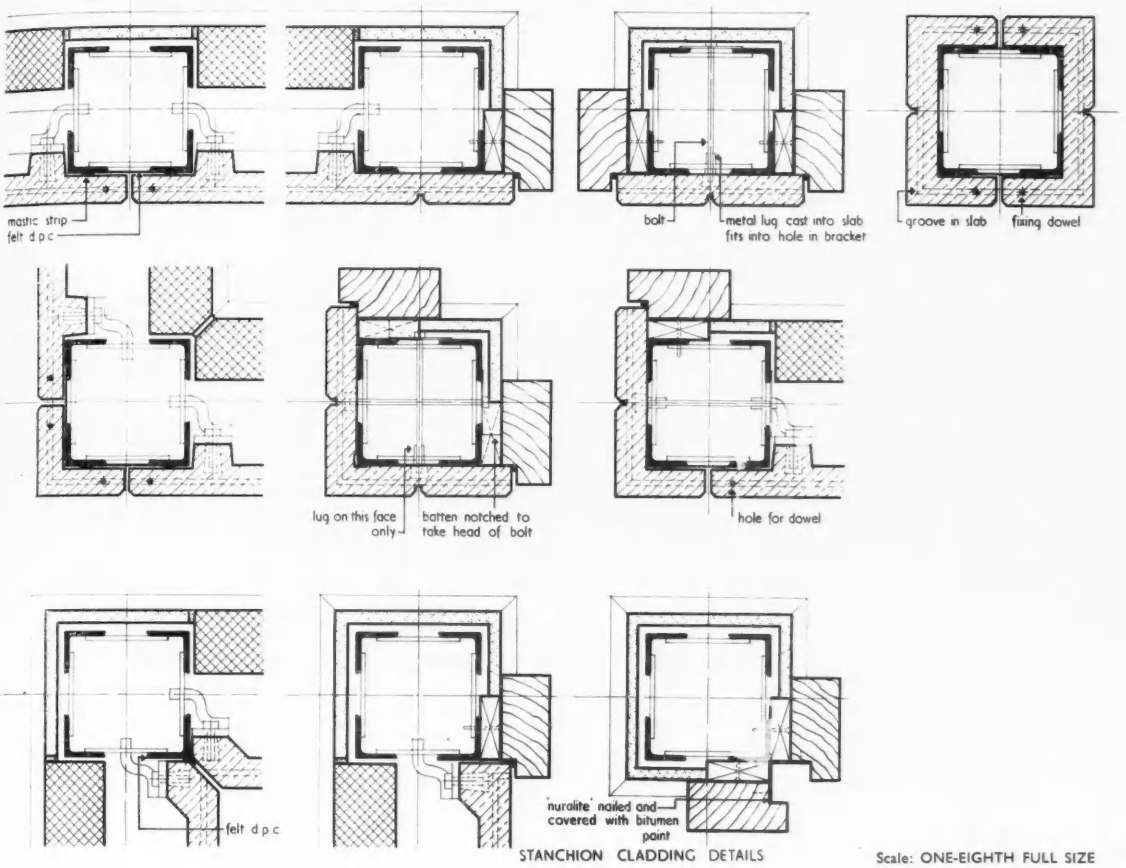
cladding units of concrete and/or brick are secured to it. The wide range of infilling panels available includes, in addition to door and window units, panels of vertical boarding, varnished plywood, 'Vitroslab' and 'Stoneclad.' Large opening lights are of varnished hardwood.

The system is capable of four-storey construction with a maximum floor span of 26 ft. 8 in. and maximum roof span of 40 ft. The frame is a development of post and beam construction. The columns have an overall dimension of 6 in. by 6 in., and the beams are R.S.J.'s or of lattice type depending on loading and span.

The roof is built up from standard assembled panels, 6 ft. 8 in. by 3 ft. 4 in., constructed from plywood on 3 in. by 2 in. joists. A 1-in. thick mat of glass wool provides the insulation and is fixed during fabrication. Roof lights are incorporated in special units which have the same overall dimensions as the general decks. The roof is covered with three layers of felt laid in hot bitumen



PLANS, Scale: 1 in. = 16 ft.


mastic strip
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bolt
metal lug cast into slab fits into hole in bracket
groove in slab
fixing dowel
lug on this face only
batten notched to take head of bolt
hole for dowel
felt d.p.c
nuralite nailed and covered with bitumen paint

STANCHION CLADDING DETAILS

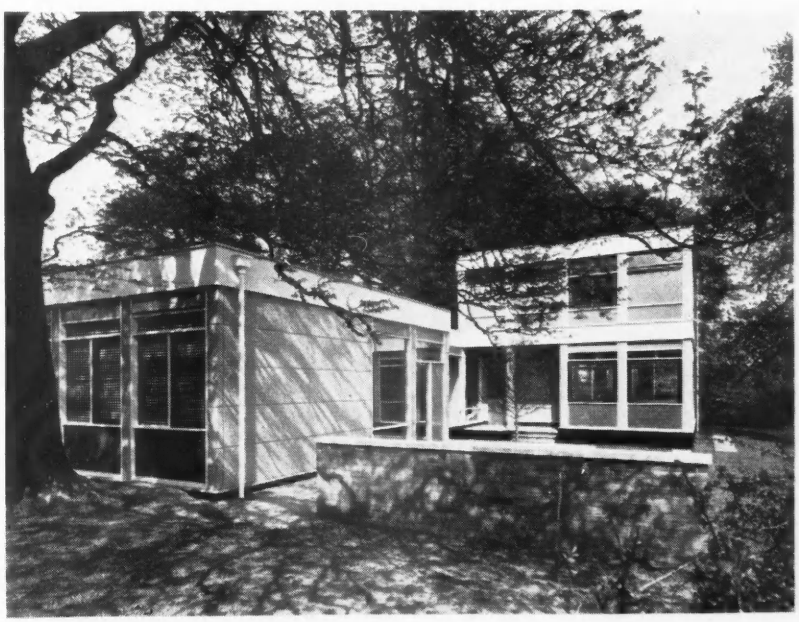
Scale: ONE-EIGHTH FULL SIZE

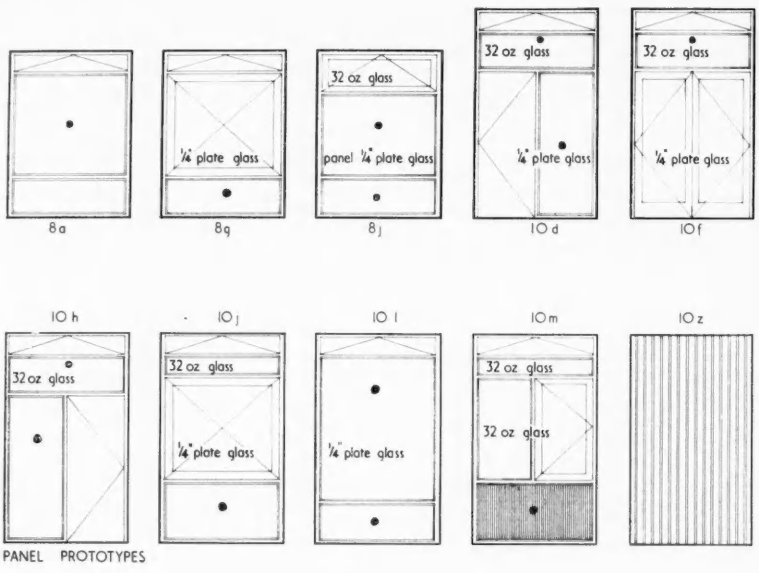
and finished with Derbyshire Spar. An aluminium flashing forms a finish at the eaves. Floors consist of prestressed concrete planks, 5½ in. wide, 2 in. thick in 6 ft. 8 in. and 13 ft. 4 in. lengths which alternate on plan. A structural screed and floor finish give an overall floor thickness of 4 in.

Various types of cladding units are available, including: Concrete blocks with several different aggregate finishes ; brickwork in differing textures and colours ; vertical mahogany boarding.

A comprehensive range of panel types containing window and door units is offered. All panels are 6 ft. wide with heights varying from 8 ft. in 2 ft. increments. Two ft. deep 'clerestorey' panels are also provided. Infilling panels include: Vertical mahogany board-

Side elevation from the south-east, see the progress photo opposite



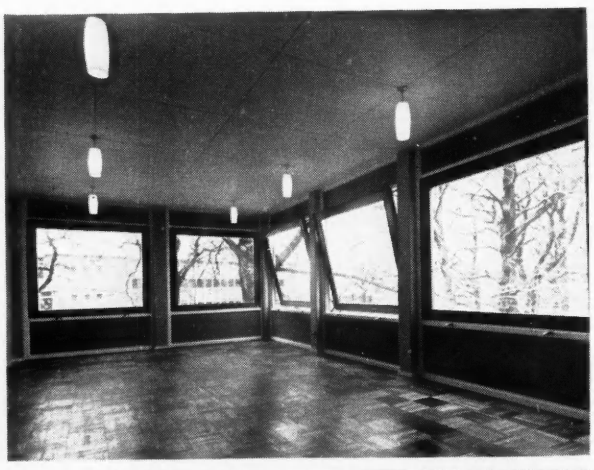


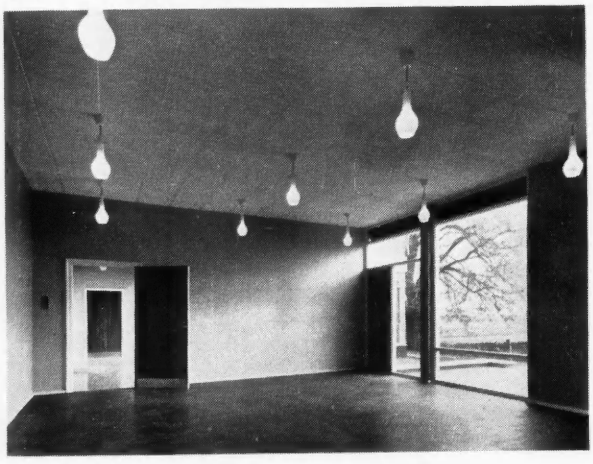
PANEL PROTOTYPES

Scale: 1 in. = 8 ft.

Interior, main entrance

First-floor interior





Ground-floor interior

ing, painted or varnished plywood, 'Stoneclad,' and 'Vitroslab.' Hollow plaster partitions, 3 in. thick and 2 ft. wide are pre-formed either at the works or on site as conditions demand. Fibrous plaster casings are provided to all columns.

Two types of ceiling panels are available, 'Supercoust' plaster panels, 1 ft. 8 in. by 1 ft. 8 in. can be provided with or without perforations. 'Asbestolux' panels are 3 ft. 4 in. by 3 ft. 4 in. Both types of panel are suspended from the underside of the roof or floor beams.

Prototype of 'Unicorn' System of Construction

Subcontractors & Suppliers :—

Roof covering, W. Briggs and Sons ; flooring, The Stonewood Flooring Co., Ltd. ; plaster linings and partitions, Petradine, Northern Sheffield ; steelwork, T. Darnell and Sons, Ltd. ; blinds, G. E. Burns and Son ; concrete facing slabs, Hilcrete, Ltd. ; bricks, The Butterley and Blaby Brick Co. ; window and door panels, South Yorkshire Woodworking Co. ; prestressed concrete floor planks, Richard Lees, Ltd., Wingates ; timber roof units, South Yorkshire Woodworking Co. ; concrete cills, Muggington Sand and Gravel Co. ; ceilings, Petradine (Northern) Sheffield.

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News of the Week

RA 'Handling Fee'

ARTISTS submitting works to the next summer exhibition at the Royal Academy will each be required to contribute a 'handling fee' of 10s. This will be a flat rate, covering the submission of one, two, or three works. The Royal Academy explains that the introduction of this fee is due to the increasingly heavy costs of handling the very large number of works received each year and to the continuing increase in other incidental costs. As in the past, no commission will be charged on works sold in the exhibition. Particulars of the handling fee and the other arrangements for the summer exhibition are printed in the notice to artists which can now be obtained from the Royal Academy.

The fee is payable also by architects submitting works.

Christ Church Meadow Decision

THE DEAN and Chapter of Christ Church, Oxford, have decided to discontinue their legal action against the Minister of Housing and Local Government over proposals to construct a road across Christ Church Meadow and to close Magdalen Bridge to motor traffic.

RIBA Prizes and Studentships

ON THE invitation of the president of the RIBA, Mr. Peter F. Shepheard, ARIBA, has undertaken to give the criticism of the drawings submitted in competition for the RIBA Prizes and Studentships, 1957-1958. Mr. Shepheard's criticism will be delivered at a general meeting of the Institute to be held in February, 1958.

How to Become a Surveyor

IN Children's Hour on February 16 (Home Service, 5 p.m.), the President and other members of the RICS will be taking part in the Career Series 'I Want to be' when the programme will be dealing with the career 'I Want to be a Surveyor.'

Gaining Experience

STUDENTS of the Birmingham School of Architecture are supervising the building of a pathological laboratory to cost, with its equipment, £10,000, at Highcroft Hall Hospital, Erdington. The students have designed the laboratory themselves.

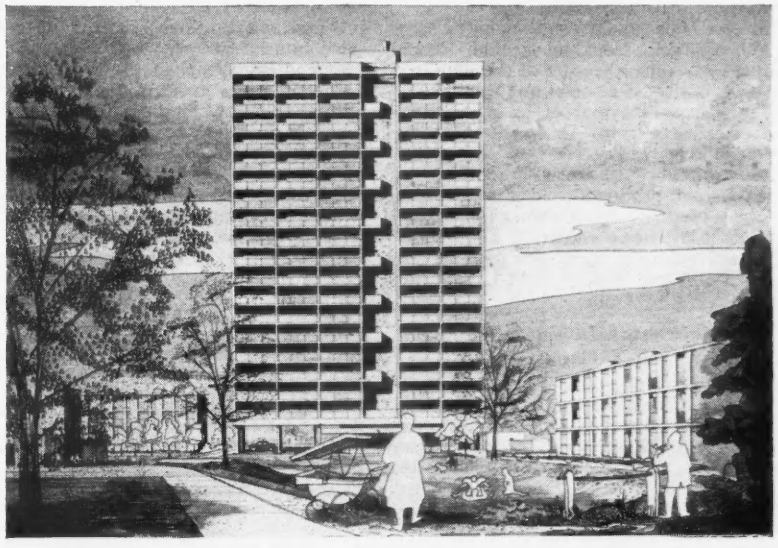
City and Guilds New Building

DEMOLITION work is now beginning on the east side of Portland-place, W1, which will mean the disappearance of the existing premises at Nos. 76 and 78 (a few doors north of the RIBA building). A seven-storey building to be erected on the site will become the new headquarters of the City and Guilds of London Institute. In the design of the new building regard has been taken of the elevational treatment and height of the RIBA building. The architects are Messrs. Howard V. Lobb and Partners, and the contractors are Messrs. Holliday and Greenwood, Ltd.

Design in the Home

THE Board of Trade, with the help of the Council of Industrial Design, will again be providing a United Kingdom section in the Palace of Nations at the Milan Fair, to be held from April 12 to 27 next. The stand will be devoted to a display of modern British design in consumer goods. Buyers will attend from all over Europe and therefore the goods will be chosen with reference to European markets in general, but, of course, with the Italian market particularly in view.

The display, whose object is to show the excellence of British products and to



NINETEEN-STOREY LCC MAISONETTES APPROVED.—Mr. Brooke, the Minister of Housing and Local Government, has overruled the objections of the Poplar BC to the erection of this 19-storey block of maisonettes at the London County Council's Tidey-street neighbourhood, Poplar. The block is the highest residential building yet designed for the LCC. In a letter to the LCC Mr. Brooke said that by including the 19-storey block they had 'devised a scheme which is satisfactory architecturally and which provides a good variety of dwellings and a satisfactory layout.' The planning of the neighbourhood was under the direction of the former architect to the LCC, Prof. J. L. Martin, FRIBA, assisted by Mr. H. J. Whitfield Lewis, ARIBA, principal housing architect, Mr. J. H. Humphreys, MICE, senior structural engineer, and Mr. L. W. Lane, senior planning architect. Details were given in 'The Builder' of April 20, 1956

COMING EVENTS

MONDAY, FEBRUARY 18.

THE MODULAR SOCIETY LIMITED. — 'Modern Architecture in the USA: Some American Views of Modular Co-ordination.' By Mr. W. T. Brown, MA, AADipl., ARIBA, The Royal Society of Arts, John Adam-st., WC2. 7.30 p.m.

CITY AND GUILDS OF LONDON ART SCHOOL.—Exhibition of works of past students and presentation of Certificates of Merit by Mr. Cyril Butterwick, Prime Warden of the Goldsmiths' Company, Goldsmiths' Hall, Foster-la., EC2. 3.15 p.m.

TUESDAY, FEBRUARY 19.

INSTITUTION OF MECHANICAL ENGINEERS.—Conference: 'The Mechanical Engineer's Contribution to Clean Air.' Central Hall, Westminster, SW1. 7.30 p.m. (Continuing until February 21.)

RIBA.—'Architecture and William Morris.' By Dr. Nikolaus Pevsner, CBE, MA, FSA, Hon. ARIBA. 66, Portland-pl., W1. 6 p.m.

INSTITUTE OF QUANTITY SURVEYORS.—Brains Trust. Members of Panel Mr. W. A. Hammond, FIQS, Mr. H. T. Burke, FIQS, Mr. T. R. Carpenter, FIQS, Mr. D. W. Mason, AIQS, ARICS. 98 Gloucester-pl., 7 p.m.

INSTITUTION OF PUBLIC HEALTH ENGINEERS.—'Storm Water Storage Calculations.' By Mr. B. A. Copas, MSc(Eng.), AMICE, Chief Engineer's Dept. LCC. Caxton Hall, Westminster, SW1. 6 p.m.

WEDNESDAY, FEBRUARY 20.

MIDDLESEX CC EDUCATION COMMITTEE.—Presentation of prizes by Sir Hugh Beaver, KBE. Willesden Technical College, Denzil-rd., NW10. 7.30 p.m.

THE FACULTY OF ARCHITECTS AND SURVEYORS.—Annual dinner followed by an address by Mr. Leslie R. Truelove, Hon. Team Manager, Amateur Athletic Association, The Victoria, Buckingham Palace-rd., SW1. 6.30 p.m.

LONDON BUILDING AND ENGINEERING CONTRACTORS ACCIDENT PREVENTION GROUP.—Annual meeting. 'Safe Use of Electricity on Building Sites.' By Mr. S. J. Emerson, HM Chief Electrical Inspector of Factories. Safety Centre, Horseferry-rd., SW1.

LCC HAMMERSMITH SCHOOL OF BUILDING AND ARTS AND CRAFTS.—Exhibition of apprentices' work. Lime Grove, Shepherd's Bush, W12. 9.30-4.30 p.m. (Also on Feb. 21, 22, 25, 26, 27.)

ARCHITECTURAL ASSOCIATION.—'Angkorwat—Cambodia.' By Mr. George Ripley. 34-36, Bedford-sq., WC1. 6.15 p.m.

THURSDAY, FEBRUARY 21.

RICS.—General meeting. 'The Housing Needs of Old People.' By Dr. Marjory Warren, MRCS, LRCP, Deputy Medical Director of the Geriatric Unit, Middlesex Hospital. 12, Gt. George-st., SW1. 5.45 p.m.

MAIDSTONE BUILDING EXHIBITION.—Opening at the Technical College by the Mayor of Maidstone (Cllr. F. Leslie Wallis, OBE). 2.30 p.m.

THE CHADWICK TRUST.—Public lecture, 'The Advantages of Modular Co-ordination in Building.' By Mr. M. Hartland Thomas, OBE, MA, FRIBA, MSIA. The Royal Society of Health, 90 Buckingham Palace-rd., SW1. 5.30 p.m.

RICS (JUNIOR ORGANIZATION).—'An Estimator's Critical Review.' By Mr. W. Gaylon, FIBE, FIOB, Chief Estimator of Holloway Brothers (London), Ltd. Victoria Coach Station Restaurant, Buckingham Palace-rd., SW1. 7.40 p.m.

BUILDERS' BENEVOLENT INSTITUTION. — Annual general meeting. 47, Bedford-sq., WC1. 12 noon.

promote their sale at this important Fair, covers 3,000 sq. ft. and includes some 350 products from more than 20 industries. A main feature of the stand will be an illustrated description of the Design Centre in the Haymarket, including specimen extracts from 'Design Review,' the Council of Industrial Design's picture and sample record of well-designed goods in current production in Britain, from which the majority of the exhibited products have been chosen. The 'Great Britain' stand is being designed by Mr. Neville Ward, ARIBA, FSIA, and Alec Heath, FSIA.

Staff Reorganisation at COID

MR. ALEC GARDNER MEDWIN has been appointed Head of the Council of Industrial Design's Industrial Division. Previously Industrial Officer for Pottery and Glass, he will for the time being retain responsibility for these industries.

Hexham Abbey Restoration

THE FABRIC of Hexham Abbey is in need of restoration and an appeal for a building fund is being made by a committee under the leadership of the Rector of Hexham, the Rev. A. G. Hardie.

In a report on the fabric Mr. John Glanfield, ARIBA, says: 'The inexorable attack by soot, wind, rain, snow and frost for some seven or eight centuries on this beautiful church is fast stripping the beauty of the moulding away. It is eroding the sandstone so deeply that in places the very core of the walling is disappearing. The task of repair and renovation of the external stonework is immense, and work is vitally necessary on most of the choir, the transept and tower stonework.'

Concrete Runway Construction

AT the invitation of the Prestressed Concrete Development Group, Monsieur A. Mayer, chairman and president of the Cement Manufacturers' Research Organisation of the Centre D'Etudes et de Recheres de L'Industrie des Liants Hydrauliques, is to give a talk at the Royal Empire Society, Northumberland-avenue, WC2, on February 25. The talk, accompanied by a film, will be on the construction of the new runway at the Maison Blanche airfield, Algiers.

MoW Director of Contracts

MR. G. V. STRUDWICK, CBE, Director of Contracts, Ministry of Works, retired on February 14. He will be succeeded by Mr. A. R. Plowman, at present Deputy Director of Contracts.

The Gower Peninsula

MR. DUNCAN SANDYS, when Minister of Housing and Local Government, confirmed an order establishing the Gower Peninsula, Glamorgan, as an area of outstanding natural beauty. In this area, which is the first of its kind under the National Parks and Access to the Countryside Act, 1949, the local planning authorities have the special responsibility of preserving and enhancing the natural beauty of the landscape for the enjoyment of this and future generations.

Orders of this kind are submitted to the Minister by the National Parks Commission, and although areas of outstanding natural beauty will not receive Government grants in the same way as National Parks towards the cost of providing additional facilities for recreation, there is provision for grants for use in making any agreements with landowners so that the public may have access to open country and for the appointment of wardens. Grants are also available for treating derelict land, tree planting, paying compensation under three preservation orders and removing disfigurements.

Professional Announcements

MR. D. GREENWOOD, BArch, ARIBA, has been appointed staff architect to Messrs. Prices Tailors, Ltd., at Cardigan-crescent, Kirkstall-road, Leeds, 4.

MR. E. L. BOUTTELL, FRICS, chartered quantity surveyor, has resigned his partnership, on personal grounds, from the firm of MESSRS. CYRIL E. KENNEY AND PTNRS., at December '31 last. Mr. Bouttell is now in practice at 15, Woodside-rd., London, N22 (tel.: Bowes Park 6093).

FROM 'THE BUILDER' OF 1857

Saturday, February 14, 1857

SMITHFIELD.—I hope you will protest against employing the site of Smithfield as a dead meat market, with its reeking carcases and disgusting sights and smells, the site being an excellent one for a handsome fruit and vegetable market, instead of that in Farringdon-street, adorned with fountains and other embellishments, so as to make it an attractive promenade as well as a place of business. Surely, even at the eleventh hour, such a desecration of one of the finest sites in the metropolis may be prevented: should it become a meat market, it will probably remain so for generations, with all its nuisances and abominations. G. H.

Appointment of Private Secretary

MR. J. R. BEVINS, Parliamentary Secretary to the Ministry of Housing and Local Government, has appointed Mr. J. Palmer to be his private secretary.

RIBA

Final Examination Results

THE RIBA Final Examination was held in London, and other centres, from November 28 to December 7 last. Of the 370 candidates examined, 154 passed as follows: Passed whole examination, 98; passed whole examination subject to approval of thesis, 1; passed part 1 only, 55; 216 candidates were relegated. The successful candidates are as follows:—

WHOLE EXAMINATION

A. R. I. Aitken; D. S. Atkinson; G. A. Ball; I. C. Bampton; John Bargman; D. M. Batliwala; P. R. Beake; D. R. Blackwell; P. B. Bolt; H. T. Bowen; R. D. Brines; C. C. Brookes; A. J. Caple; Dennis Clapson; A. S. Cole; J. H. A. Coleman; B. W. Collins; A. D. Cox; J. A. Cross.

Peter Denney; W. H. Dickie; Donald Dixon; Gerald Dixon; R. R. Dixon; K. E. Dowse; T. A. Dunphy; B. F. Evans; D. H. A. Evans; R. H. Faulks; Roy Fawden; Bernard Feldstein; W. Q. Finch; G. J. Fisher; J. D. Floydd; B. C. Foster; B. H. Frankcombe; R. C. Furze.

K. R. Gibson; H. P. Gifford; †I. N. Goldthorpe; (Miss) Rosemary Hall; K. J. Harding; G. M. Hardy; J. E. F. Harrison; W. D. Hewetson; J. W. Holliday-Scott; Ivor Hollingsworth; R. J. Hooper; A. J. Hudson; W. F. Jefford; A. N. Jump; A. R. Kaberry; P. J. Kirkham; Roland Lanoon; M. J. Leonard; *I. K. McCall; Bronislaw Mazuch; E. J. W. Miller; J. M. Money-Kyrle; B. A. Muggleton.

J. D. Nixon; P. J. Parekh; A. T. Park; (Miss) C. R. Partridge; J. R. F. Pearce; J. S. Peters; Peter Phippen; A. H. Pierson; L. A. D. Plummer; †F. G. Reeves; J. F. Reeves; P. M. Richards; J. M. Richmond; (Mrs.) M. L. Rome; B. J. Rushton; †D. L. T. Serjeant; W. A. Sibley; D. C. Sinclair; W. J. Sloan; J. C. Smith; H. G. Stachowski; D. C. Streatfield; J. A. Stroud; R. H. Stubbings; D. R. Surti.

R. H. F. Taylor; J. L. Timpson; †K. R. Town; J. R. Turner; P. J. Vallance; D. V. Wade; J. R. Watts; Francis Weal; Brian Weddle; W. T. Whitaker; G. G. Whiting; B. C. F. Wong; Kenneth Wood; J. F. Yabsley.

PART 1 ONLY

K. N. Argent; (Miss) H. W. Barnett; L. J. Beach; J. D. Benstead; Joe Bentley; F. R. Bernard; E. R. Bryan; D. L. Bull; Geoffrey Burton; E. J. H. Cawdron; R. E. Cordin; G. E. F. Cox; K. S. Davis; Ronald Dean; Michael De St. Croix; Graham Devese; D. W. Dry; T. Dudzicki; M. C. Dunkley; Alec Flinders.

B. J. Godding; J. F. Gomez-Hall; A. J. Groves; P. F. Haddon; C. P. H. Higgins; A. H. Hutchings; Andrew Imrie; (Mrs.) M. Janowska; (Miss) S. Kendall-Torn; P. G. Kennedy; Frederick Lincoln; D. J. Lock; J. E. Marsh; A. A. J. Marshman; P. L. Maunder; A. P. Millis; John Milner; W. H. F. Morris; H. C. O'Neill; G. L. M. Rainbird; Alan Robinson; W. P. Rookley; Jacek Rumun.

E. J. Saunders, D. J. Senior; J. A. Severn; John Smethurst; D. G. Smith; L. S. Sobieniewski; R. M. M. Spence; D. J. Stanfield; J. M. Thomas; David Thomson; R. J. Thornett; G. E. Trinder.

The Special Final Examination

THE Special Final Examination was held in London from November 28 to December 7 last. Of the 302 candidates examined, 94 passed as follows: Passed whole examination, 77; passed part 1 only, 17; 208 candidates were relegated. The successful candidates are as follows:

WHOLE EXAMINATION

T. R. Anderson; L. T. Ashcroft; R. A. Baker; J. F. Barker; R. C. Baxter; J. A. Belzar; J. J. Butler; R. P. Callear; L. O. Collins; J. R. Combe; G. W. J. Davies; J. G. Dixon; Harry Dobby; Henry Drake; E. J. Evans; D. W. Fielder; T. R. Fisher; E. F. H. Foster; Walter Garretts; E. H. Greenwood; Roy Grinyer; Ronald Grocott; J. F. Grover.

C. C. Hawthorn; Laurie Hepton; A. G. Horwell; (Miss) M. M. Hulton; D. E. Humphrys; L. B. Ingram; H. C. Johnson; Stefan Kaczmarczyk; D. P. Kavanagh; A. D. Kendrick; J. S. Kent; A. S. King; Jan Kleiber; P. G. Kuhnel; S. R. Lawson; A. R. F. McGahan; A. R. G. Milner; D. C. H. Mitchell; H. E. Morgan; A. N. Mukherjee.

R. T. Napiorkowski; K. O. O'Byrne; C. S. Oldfield; D. R. Owen; R. M. Oxley; A. W. Parkinson; L. F. Payne; A. Y. Pitts; E. M. Plummer; Robert Pratt; E. G. Prior; M. A. Puffahl; W. F. Radlett; C. F. V. Randall; E. D. Rhodes; J. C. Robinson.

T. A. Scarisbrick; Kenneth Seel; R. F. Sewell; C. R. Sharp; Alan Silcock; H. M. Sinclair; R. C. Sparrow; J. A. Stent; Antony Susainathan; G. B. Thompson; F. J. Towler; Harold Wahnon; I. A. Webb; D. J. West; B. R. Wilcox; G. T. Wilkinson; J. L. Wilson; M. E. Woodford.

PART 1 ONLY

H. K. Alston; H. E. Coast; Jonathan Green; D. H. Griffin; A. H. Hughes; D. N. Joyner; Geoffrey Langdell; S. A. Meades; Jan Muszynski; D. R. Owen; A. P. Peters; K. W. Razzell; Eric Seaton; Robert Simpson; J. E. Smith; Z. A. Suppel; J. H. Wright.

*Subject to approval of Thesis.
†Distinction in Thesis.

Building Cost Research

RICS QUESTIONNAIRE TO MEMBERS

The Royal Institution of Chartered Surveyors are seeking the co-operation of members in an investigation which they are conducting into the high cost of building, with particular reference to flats, and have prepared a questionnaire on the subject which members are requested to complete. The following notes on the problem, together with the questionnaire, are reproduced by permission of the Institution from which, at 12 Great George Street, SW1, copies of the questionnaire are available.

THE Minister of Housing and Local Government has expressed concern at the high cost of building and has asked the RICS to advise him on the reasons why flats cost more than houses in this country; which is understood to be the reverse of the situation on the Continent.

There can be no doubt that a detailed investigation of this problem may contribute not only to a reduction in the cost of flats but in the cost of building as a whole, and when it is realised that a reduction of 10 per cent. in the cost of building would represent a saving to the country of approximately £150m. per annum, the importance of this research will be realised.

The Cost Research Panel of the Institution is making a detailed analysis of a number of selected schemes covering two-storey and multi-storey housing development, with a view to establishing the effect on cost resulting from differences in construction methods and from different forms of construction, finishings and equipment. It is hoped to relate the results of this research to studies carried out by some of the Government Departments and the Building Research Station, with whom the closest degree of co-operation is being maintained. It is believed, however, that there are other factors which have an influence on the cost of building and are worthy of consideration by the Panel [set up to conduct the investigation].

In order to make some assessment of the importance of these other factors in relation to cost, a questionnaire has been prepared by the Panel for circulation to quantity surveyor members of the Institution and to other organisations, who may be able to contribute usefully to the investigation. The questionnaire is reproduced below.

Questionnaire on the Cost of Building

1. Do local authorities generally give their architects a limit of cost within which each scheme should be designed? If not, would this be an advantage?

2. Would guidance from the Ministry of Housing and Local Government be useful to local authorities and architects in the above respect?

3. What are the effects on design and tenders and the advantages or disadvantages of ceiling prices such as those used by the Ministry of Housing and the Ministry of Education—(a) when published? and (b) when not published?

4. What form should information on ceiling prices take to be most effective?

5. Is sufficient attention paid to finding the most economic type and design of development, e.g., high or low blocks for particular sites at required density? For example, are the cost differences between high and low buildings fully appreciated and examined; is care given to the maximum reduction of the ratios between access space and living space and between external wall perimeters and plan areas; and to the reduction of site works to a minimum?

6. (a) Are major decisions influencing cost taken before the quantity surveyor is selected?

(b) Can the quantity surveyor, if called in early enough, provide advice on cost aspects of types of development and of design and specification?

7. (a) To what extent do building designs take account of alternative methods or materials of construction, structural designs, etc., in seeking economic solutions to the clients' requirements?

(b) Are attempts to secure economic savings in this way reflected in the tender prices received?

8. What is the most practical and economical method of obtaining designs and tenders for specialist work, e.g., from schemes prepared by nominated specialist sub-contractors or by including in the bills of quantities details and measurements from designs prepared by consulting engineers in respect of:—(a) structural frames; (b) floors; (c) any specialist forms of cladding; (d) heating and hot water installations; (e) plumbing and drainage installations; and (f) electrical services?

9. What proportion by value of a tender on bills of quantities for multi-storey flats consists of PC sums? Please give examples.

10. Is adequate competition always obtained in tenders from nominated sub-contractors ?

11. Would it make for lower prices if contractors were given the opportunity of tendering (at tender stage) for some of the items usually treated as PC sums?

12. Are tenders for flats generally more or less competitive than tenders for houses?

13. Are tenders for houses generally more consistent than tenders for multi-storey flats having due regard to the accommodation provided?

14. To what extent are final drawings and specifications normally available at the time of tender, and to what extent are tenders invited before designs and specifications are sufficiently complete?

15. What factors, if any, hinder planning prior to tenders?

16 (a) Does the time allowed for tenders have any marked effect on tender prices?

(b) Does inadequate time allowed for tendering lead to higher prices by excluding firms who might otherwise have submitted tenders?

(c) Do building owners spread their inquiries for tenders evenly throughout the year and, if not, does this have any marked effect on the tenders received?

17. (a) Is the present form of the bill of quantities and method of measurement best suited to all forms of construction?

(b) Does the present method give an adequate description of repetition or unusually complex work to enable accurate estimates of cost to be made (related to types of work)?

18. (a) Do variations generally arise from inadequate pre-contract planning, or from subsequent changes of mind of architect or building owner or from other sources?

(b) What practical steps could be taken to lessen the number of variations?

19. Do you consider that the inclusion of the rise and fall clause in contracts has had any effect on the cost of building—(a) in respect of materials? and (b) in respect of labour?

'NO FINES' FLATS

Cheltenham Builders Deputation

A DEPUTATION from the Cheltenham branch of the Federation of Master Builders was received by the Housing Committee of the Cheltenham Borough Council at their meeting on January 22, when the Secretary, Mr. H. D. Cassini, stated that the Federation, which represented many of the housebuilders in the town, was concerned about a proposal of the Committee to negotiate a contract for blocks of five-storey flats in 'No Fines' construction which had been reported in the local Press.

Mr. Cassini stated that it was felt that the principle involved was unfair, since no similar invitation had been issued to local builders, and that similar arrangements should be made with members of the Federation or tenders invited for the scheme by advertisement. Large national organisations created local labour difficulties and whilst the Federation, as ratepayers, were not asking for preferential treatment, they felt entitled to equal consideration.

The Chairman stated that the Committee appreciated the views expressed on behalf of the Federation and that they were themselves not in favour of the principle of negotiated tenders. In this instance, however, they had decided that 'No Fines' five-storey flats, designed and built exclusively by the firm in question, were the type which should be erected and they could only ask the company to submit a price. The Committee were also influenced by the fact that the tender could be obtained within a month or two, since the flats were of standard design, whereas it would take the Borough Surveyor's staff, who were already heavily engaged on housing schemes, up to 12 months to design plans, take off quantities, prepare bills and specifications and obtain tenders.

The Committee had recently advertised several contracts and members of the Federation were now engaged in building for the Council. Tenders would also be invited by advertisement during the next few months for several other contracts, so that members of the Federation would have ample opportunity of tendering for further Council dwellings. It was also pointed out that, in the event of the negotiated tender in question not being in the opinion of the Council and the Ministry fair and reasonable, it would not be accepted.

Commonwealth Schools of Architecture

LONDON EXHIBITION EMPHASISES TREND TO A STANDARDISED AESTHETIC

OPENED by the South African High Commissioner on January 30, an exhibition of drawings from schools of architecture in the Commonwealth was on view to the public for the two days following the opening, in the North Cloisters of University College, London. Those who missed the event may be consoled by the fact that only two overseas schools were represented on this occasion—the Universities of Cape Town and of Sydney, the Bartlett contributing a third section by way of making the overseas visitors feel at home. Short of the fuller survey for which it had been hoped and which would have been of enormous value, the comparison was not without interest, though lacking the sharp contrast one would have liked to see for reasons I shall expound later.

Any disappointment which this note may indicate is not so much on the score of quantitative inadequacy, however, as of qualitative all-over-alikeness. Indeed, it is unfortunately not too much to say that the exhibition served to confirm on a wider front misgivings expressed in my notes here following a review of the London schools' annual exhibitions—that student output was so progressively approximating and averaging-out in quality, and formularising itself in treatment, that it is now difficult to tell, or choose, one from the other: and this quite apart from the levelling-up effect of the accepted newer materials and methods in any case tending to produce a standardised aesthetic.

The requirements of the Board of Architectural Education have sometimes been blamed for this: but the charge seems hardly valid in the case of our recognised schools enjoying a degree of autonomy—and even less so in the case of Commonwealth ones who must be completely self-governing, or at least near enough to the back of the classroom to get away with metaphorical murder! Whatever it is that is meantime washing and ironing out all racial, local, national or other characteristics which might help to create an identifiable vernacular, must therefore be sought elsewhere.

Personally, I am inclined to blame the sudden world-wide over-popularity of a 'contemporary idiom' in its more superficial and commercially-debased versions —but that is another story which might smack of snobbery if condensed here. It would, however, be quite unfair to make our Commonwealth prodigal sons into scapegoats, for this is an avuncular homily they have not asked for, though perhaps the irritation even a critic must occasionally be allowed, may be given expression in general terms, at the end of this note, if it persists until then!

Sydney is, I think, the more artistic of the two prodigals—and I do not mean 'arty' but, on the contrary, intend a compliment. Both in design and presentation (insofar as one can generalise—a reservation to be taken as read throughout) though perhaps the less assured and slick, it seems more spontaneous and experimental, and therefore more what one had hoped to see. For example, some essays in poster design, window display and photomontage, though drawing on commercial art rather than direct on first-rate sources, at least showed sense of place and occasion, and flexibility. Two church subjects also suggested a feeling for media, such as mosaic and satined glass, not easily developed far from European sources—though admittedly the influence of Coventry Cathedral must by now have circled the globe!

But to adduce a high degree of artistic sensibility from all this would be misleading: I did for instance note that some figure drawing in a theatre foyer sketch was not *quite* as good as it looked at first glance — and the greater apparent preoccupation with presentation did not prevent a sensible and competent approach to more architectural business — as in an animal clinic and an art gallery, where the design I thought rather better than the presentation. In at least one other case, a boat club, they were about of equal merit, combining to realise on paper a good scheme.

Cape Town Exhibits

With Cape Town, the impression is generally of a higher mental age and even—though I wish I could use the word in its best sense — sophistication. Here, however, I thought I detected the suggestion of the over-popular 'contemporary idiom' to please big business rather than through personal conviction—and that idiom's being rather more dated and derivative. A small but significant example of the inconsistencies resulting was that in a design for a hand-weaving shop called 'Wafters' (shouldn't it, incidentally, be 'Wefters'?) no capital initials were used in the titling or notes on the drawings. Surely, even in the furthermost outposts of Empire, this outmoded cliché must have reached a shop-fitter level somewhat incompatible with the handicraftiness of the subject?

More seriously, a well-integrated scheme for the Hostel of an Agricultural College, and a quite accomplished one for what I supposed to be an Ocean Terminal —not all drawings were quite adequately titled for export exhibition—were more independent of passing fashion as well as technically convincing. I would, however, even more highly commend a scheme for an indoor athletic stadium for its stimulant contribution to the moribund architecture of sport than for its breadth and assurance of handling.

Little space is left for reference to the Bartlett's own display of eight bays of 'pace-making,' divided into years (plus the school of decoration) as opposed to the scrambling of those of the visiting teams in their respective contributions of some fifty drawings apiece. As a stop press item, however, I gladly report the award of bronze medals, presented by Sir Alfred Bossom, MP, to C. M. Ezer (Cape Town) for the stadium design referred to; to Z. A. Schmaeling, of Sydney University for his art gallery; and, for fair play all round, to Alan Hewitt of the home team for his helicopter station near Blackfriars Bridge. A generous and appropriate gesture to mark the occasion.

On consideration, my threatened homily simmers down to this: frankly, the younger generation's work at the schools is beginning here and there to look a bit dull and stale to an elder one firmly on their side, but still conscious of having incurred more kicks (and fun) than credit (or ha'pence) on their behalf in paving the way for an architecture expressing the times, and places, in which we live. That younger generation not only seems a little unappreciative but moreover affects sometimes to despise elders in whose wake it is content to drift.

In reviewing the RIBA's Exhibition of Australian Architecture, I ventured then to suggest that too much lip service was being paid there to the views of a 'mum and dad in the old home' who might secretly prefer to have them shaken up a bit, and that this might be less due to filial piety than it seemed. The emotional and intellectual dependence apparently persists at school, and in other Commonwealth countries. Would it, I wonder, lastingly hurt feelings there to hint that, now they have independence of action, their coming of age might be marked by a more evident independence of thought.

BASIL MARRIOTT.

GLASGOW SCHOOL OF ARCHITECTURE

AWARDS and diplomas were received by students on Thursday (January 24) at a ceremony in the School of Art. Professor W. J. Smith, director of studies, submitted a report for the 1955-56 session in which he stated that students who completed their training and qualified found no difficulty in obtaining good appointments either in private practice or in central or local government offices.

MEDALS AND PRIZES

John Keppie Scholarship.—W. M. Toner.
Gilt Medallion.—W. D. Paterson.
Bronze Medallions.—W. D. Hunter; R. A. Forrester.
Glasgow Corporation Medal.—W. M. Toner.
Institute of Architects' Prizes.—A. Merrylees (design); M. J. Thomson (measured drawings); W. M. Toner (life drawing).
Minor Travelling Studentship.—H. C. S. Ferguson.
T. L. Watson Prize.—H. S. Morris.
Brough Prize.—G. B. Christie.
J. B. Wilson Book Prize.—E. H. Patterson.
Gourlay Memorial Prize.—A. F. Modinos.

DIPLOMA

R. Bose; R. B. Boyd; R. G. Carlisle; G. Christie; I. R. Cooper; I. J. Dawes; T. M. Gray; G. S. N. Hawthorn; J. Hepburn; G. B. Horspool; J. Khan; J. J. Macfee; D. McNidder; N. C. Mack; A. Merrylees; W. D. Paterson; W. B. Peat; P. H. Spence; I. Taggart; W. McK. Toner; A. H. Watson; P. M. Whitson.

POST-GRADUATE DIPLOMA IN TOWN PLANNING

J. M. Clugston, ARIBA; J. Cunningham; G. K. Davie; G. Duncan; J. H. Fisher; R. E. G. Miller, ARIBA; R. A. Strang, ARIBA.

SCHOOL CERTIFICATES

W. G. Crerar; J. L. Cunning; P. Darling; J. Deans; A. G. Douglas; J. H. Fullarton; R. Miller; W. I. Mitchell; K. E. T. Nugent; I. R. Patterson; J. G. Simpson.

Building in the City

MANY NEW DEVELOPMENTS APPROVED

IT was reported at the meeting of the Court of Common Council in Guildhall on February 7, that the Worshipful Company of Mercers had agreed to convey to the Corporation, land fronting Gresham-street, King-street, Lawrence-lane, Mumford-court and Milk-street, other than that comprised in 40, Gresham-street and 26, King-street.

The transfer will enable the Corporation to carry out improvements to Milk-street, Gresham-street and King-street, in connection with the Mercers' Company's redevelopment of 20 to 40, (even) Gresham-street, 26 and 27, King-street, 16 to 19 Lawrence-lane, 7 to 11, Mumford-court and 9 to 12, 12a, 13 and 14, Milk-street.

The Court approved a recommendation by the Improvements and Town Planning Committee that permission be granted for 'the erection of a new building on so much of the site as remains after providing for street improvements.' (Architects: Ellis, Clarke and Gallannaugh, FRIBA.)

Other redevelopment plans to which approval was given were:

Church of St. Mary-le-Bow, Cheapside: Reinstatement of the tower, spire and church to the design and form which existed prior to damage by enemy action. (Architect: L. King, FRIBA.)

The portion of the disused railway siding east of Farringdon-road and south of Charles-street which is within the City boundary; use of an underground disused railway siding for garaging. (Architects: Knapton and Deane, FRIBA.) A condition is that the use must be discontinued by October 31, 1961.

Nos. 9 to 12, 11a and 12a, Long-lane: Erection of a six-storey office building, with storage in the basement, and caretaker's flat at the sixth-storey. (Architects: Ley, Colbeck and Partners, FF.RIBA.)

Nos. 12 to 20, Camomile-street: Erection of four sectional garages for a period of one year.

Permission was also granted, on an outline application, for the reinstatement of 90, Queen Victoria-street, following war damage. (Developers: Debenham, Tewson and Chinnocks.)

Permission was refused for the reinstatement, following war damage, of 28, Cannon-street, on the grounds that the proposed development would conflict with proposals for the comprehensive redevelopment of the area of extensive war damage in which the site is situated, including an extension to the existing fire station. (Developers: Debenham, Tewson and Chinnocks.)

Also approved were drawings and details of materials submitted in compliance with the conditions of permission already granted. Details, and date of grant of permission, are: Nos. 70 to 75 and part of 67 and 69, Houndsditch and 35, 35a, 36 and 36a and part of 34, Camomile-street; erection of an office building (Nov. 15, 1956). (Architects: Knapton and Deane, FRIBA.)

Nos. 58 to 69, Fetter-lane, part of 7, Holborn Circus, 5 to 11 and part of 12 Bartlett's Buildings and 1 to 3, Bartlett's Passage: Erection of a building comprising a deep basement, with three mezzanine basement floors, ground floor, with eleven storeys over for use as a printing publishing office for the *Daily Mirror* newspaper (July 26, 1956). (Architects: Anderson Forster and Wilcox, FF.RIBA.)

No. 60, Mark-lane and 4 to 7, Hart-street: Erection of an office building comprising basement, ground floor with five storeys over (November 15, 1956). (Developers: City of London Real Property Co., Ltd.)

Site bounded by Cheapside, Milk-street, Russia-row and Lawrence-lane: Erection of a new building having basement, ground and eight upper floors for use as offices with shops on the ground floor and incorporating two licensed premises and a basement car park (March 11, 1954). (Architects: W. Curtis Green, Son and Lloyd.)

Nos. 7 to 17 (inc.), Jewry-street, 5, 6, 6a and 7, Carlisle-avenue, and 1, 2 and 3, Crown-court: Erection of a building for use as offices, comprising basement, ground floor and seven upper floors with a car park in the basement (July 22, 1954). (Architects: S. Clough, Son and Partners, F/ARIBA.)

Confirmation of compulsory purchase orders and provisional agreement of compensation was reported. This relates to: Coachmakers Hall and 12, Oat-lane and sites of 8 to 11, Oat-lane (£62,000 plus surveyor's fees and legal costs); 119 and 120, London Wall and 56 and 57, Fore-street (basement, ground, first and second floors) (£3,400 plus surveyor's fees and legal costs); 48, Old Bailey (ground floor, basement and sub-basement) (£3,750 plus surveyor's fees and legal costs).

The Court accepted a recommendation that the Corporation purchase, by agreement, the interest in 69, Ludgate-hill at a cost of £22,200 plus surveyor's fees, etc.

The committee reported that the acquisition of the property, a cleared site, was necessary in order to achieve the comprehensive redevelopment of the area.

The committee also referred to the desirability of protecting the planning proposals for the area surrounding and including 15 to 20, 24, 26, 29, and 30 to 32, Great St. Helens and 5 to 15 (odd) and 21 to 23, St. Mary Axe. Planning permission was granted in 1949, but not yet implemented, for a block redevelopment on this site.

NEW CITY BUILDING.—A perspective of the proposed new 'BP House,' for occupation by British Petroleum, Ltd., which is to be erected on a site bounded by Chiswell-street, Moor-lane, Ropemaker-street and Finsbury-street in the City of London, for Barranquila Investments, Ltd. The architects are Messrs. Joseph, 10, Lowndes-square, SW1, and the builders Myton, Ltd., of Hull

The committee recommended that the London County Council be requested to revoke permission on the grounds that 'any new development on this site should conform with present planning standards as to light and air, and should provide adequate parking provision within the curtilage of the development, and that Mr. Comptroller and City Solicitor be instructed to take no further action on the reference to him to effect an exchange of lands in connection with the development for which permission was granted in November, 1949.'

The recommendation was accepted.

A further recommendation, also accepted, related to the freehold interest of 59a, Farringdon-street and 22 to 24, Farringdon-avenue, which was acquired by the Corporation in September, 1954, for £1,800 following service of a purchase notice.

The committee recommended that, subject to the consent of the Minister of Housing and Local Government, part of this interest be sold to Beaverbrook Newspapers, Ltd., for the extension of the *Evening Standard* building at 43 and 44, Shoe-lane, for £4,000. The remainder of the site is required by the Postmaster-General in connection with the proposed Fleet-street Telephone Exchange.

LCC

Single-stack Plumbing

AT a meeting of the LCC on February 5, MR. E. E. WOODS agreed, in reply to a question, that the Council, the Building Research Station of the Department of Scientific and Industrial Research, and other users had found, during the last few years, that single-stack plumbing was completely satisfactory and effected a saving of about £10-£12 a flat.

In answer to a further question, Mr. Woods stated that the drainage by-laws were being revised at present and if eventually approved as drafted, single-stack plumbing would be permissible without special approval.

On the subject of whether he could agree that it was regrettable that one metropolitan borough council, unlike the remaining 27, refused to allow single stack plumbing, and whether the Housing Committee would do all it could to persuade the borough council concerned to permit what was now an established practice in order to improve and effect economies on both the Council's accommodation and private development, Mr. Woods replied that, while recognising the rights of the borough council under the existing by-laws, the Council always sought to gain their co-operation. About 20 of the metropolitan borough councils had been prepared to sanction an experimental departure from the existing drainage by-laws by permitting the installation of single-stack plumbing.

School Decorations

MR. H. C. SHEARMAN replied to a question put by Mr. L. I. Salmon, chairman of the Education Committee, relating to the lapse of time allowed for the payment of an account for school decorations amounting to less than £50 after the completion of the job and the receipt of the invoice.

School decorations, he said, do not usually cost less than £50. The less costly jobs are subject to a three-months' maintenance period by contractors and final accounts are not settled until this period has expired, but interim payments (without an account) may be made. Provided an account has been rendered, final payment is normally made within two to three weeks of the expiry of the maintenance period mentioned.

Applications Under London Building Act

MR. MARTIN BOND asked the chairman of the Town Planning Committee what was the time taken to deal with straightforward applications under the London Building Acts for permission to alter or convert existing dwellings?

MR. R. EDMONDS: The time taken to deal with applications for conversions varies in relation to the complexity of the problem and the amount of negotiation necessary with the developer, but the average time taken is two months. Alterations not involving conversion of premises would normally be dealt with on the spot by the district surveyor concerned.

MR. MARTIN BOND: Is the chairman not aware that generally speaking applications have to wait for about three months in the queue before even the simplest can get attended to, although I realise after that there must be a great difference in the time taken to dispose of them?

MR. EDMONDS: I do not agree with that view.

MR. HAROLD H. SEBAG-MONTEFIORE asked the chairman of the Housing Committee why the Council (or its contractor) did not appeal in the case referred to in the issue of a weekly journal of January 5, 1957, where it was stated that the district surveyor's decision was involving the Council in extra expenditure of about £40,000?

MR. W. G. FISKE: The article referred to is misleading, particularly in its reference to appeals. A waiver of the relevant building by-law was not sought because in the view of the Council's technical advisers it was best, in the interests of the progress of the work and of minimizing the ultimate financial claims on the Council, to adopt a modified design which met the district surveyor's objections. Nevertheless, our experience has shown the need for some examination of procedure under the London Building Acts.

MR. HAROLD H. SEBAG-MONTEFIORE asked the chairman of the Town Planning Committee (i) how many appeals from decisions of a district surveyor have been made under the London Building Acts (Amendment) Act, 1939? (ii) In how many cases has the appellant been the Council? (iii) Is the system of appeal laid down in the Act considered to work satisfactorily?

MR. R. EDMONDS: (i) Four have been lodged with the Council; three of these were either withdrawn or settled in some other way, and the fourth was heard by the subcommittee of the Town Planning Committee set up for this purpose. (ii) None. (iii) While the appeal system was considered satisfactory when last reviewed in 1949, in view, *inter alia*, of changing building techniques since 1949 a fresh review of the provisions of the London Building Acts and by-laws is contemplated, and the arrangements for the settlement of disputes under the Acts will form part of the review. As the hon. member is aware, the Town Planning Committee at their last meeting took the preliminary decisions in the matter.

TOWER CRANE CONTROLLED FROM GROUND

From a Correspondent

A CURIOUS scene is attracting the attention of the citizens of Kiev, in the Soviet Ukraine, where a big building project is under way. A big crane is lifting large prefabricated concrete into position—but there is nobody in the crane cabin.

The craneman stands at the spot where the load is to be placed. In his hands he holds a small box bearing knobs. A thin cable stretches from the box to the crane cabin. He twiddles the knobs, and the crane responds.

The method was devised because it was found that the craneman of a big crane could not easily see from his cabin just where the load was to go. The difficulty was particularly great in handling the new prefabricated units, which the Russians are now using in large sizes to speed the long-neglected building programme.

The remote-control apparatus, it is stated, can be adapted to any existing tower crane.

TOWN PLANNING DECISION

Appeal to Build in Green Belt Rejected

BECAUSE of the importance of retaining as much of green belt areas as possible, the Ministry of Housing and Local Government has rejected an estate developer's appeal to build new houses on land near Solihull. The Ministerial decision announced recently follows an appeal by Messrs. H. Dare and Son, Ltd., against Solihull Borough Council's refusal to permit the erection of 39 detached houses on 52 acres of land near Copt Heath.

Rejecting the appeal, the Ministry says that the proposed site formed part of the green belt in the borough. 'The Minister attaches great importance to the green belt principle, and considers that only in exceptional circumstances should new buildings be allowed in such areas.'

WAGE CLAIM REJECTED

Employers' Decision

BUILDING employers' representatives rejected on February 7, the claim made on behalf of more than a million workers in the industry for another 4d. an hour in basic wages. At the request of the National Federation of Building Trades Operatives the deadlock has been referred to a subcommittee of the industry's National Joint Council. The sub-committee will try to secure an agreement, but if they are unsuccessful it is expected that the claim will go to arbitration.

The employers, who are reported to have made no counter-offer, consider that they cannot afford to add further to their costs at present. The cost of conceding the claim would be about £40 million a year.

'SCHOOL BUILDING COSTS DROPPING'

Lower Tenders at Birmingham

SCHOOL building costs in Birmingham are dropping, CLLR. VICTOR TURTON, chairman of the sites and building sub-committee, told members of the Birmingham education committee at their meeting on February 4. 'Tendering is better than it has been since the war. I suppose it is a sign of the times,' Cllr. Turton said.

While tenders for secondary schools had, until recently, been as much as £30,000, £40,000 or £50,000 over the figure allowed by the Ministry of Education, those being received now were within the figures allowed, he added.

More labour was now available for school building, he said, and there were more builders ready to tender.

New Taunton Municipal College

Plans are being prepared for the £500,000 Municipal College which is to be erected on a 15-acre site at Wellington-road, Taunton, Somerset. The final scheme, which includes a new College of Art, will take several years to complete, but provision has been made in the county estimates for the first stage, which will cost about £108,000 and which, it is hoped, will be started in the 1957-58 financial year.

LMBA

The Role of Management

THE first week-end conference on the rôle of management in the building industry, arranged by the London Master Builders Association, was held at the Sundridge Park Management Centre from January 31 to February 2. The directors of 22 firms attended. A second course, from March 21 to 23, is already fully booked, and it is hoped to organise further conferences later in the year.

The purpose of these conferences is to provide an opportunity for top-level members of the building industry to discuss the place of management in the industry, to consider some of the 'tools' of management available to them in carrying out their responsibilities, and to see what facilities are needed for management training and the extent to which they are at present available. To provide a common background for the conferences, members are asked to study the pamphlet prepared by the British Institute of Management in collaboration with the Board of Building Education on 'Management Training in the Building Industry.'

The two-and-a-half days' conference this month covered a wide field. After an introduction by Mr. W. Kirby Laing, the president of the LMBA, the conference considered such subjects as current economic and productivity problems; the function of management; human relations in the industry—this took the form of a discussion initiated by a member of the TUC Production Department—and a survey of the 'tools' of management, with special lectures on personnel management and financial control. Planning and control techniques and an introduction to work study with the special application of both of these to the building industry, were also considered.

A feature of the conference was the contribution by three leading members of the LMBA. Mr. D. E. Woodbine Parish spoke on 'The Structure of the Building Industry'; and Mr. N. S. Farrow introduced a discussion on 'The Application of Modern Management Techniques,' while Colonel K. J. Pearce, TD, led a discussion on the application of work study and the use of planning and control techniques. Mr. C. A. Francis, of the Building Advisory Service, and Mr. Reiners, of the Building Research Station, were present at the discussion on work study.

It was generally agreed that the conference had been of very considerable value, and the thanks of the LMBA were conveyed to the director and deputy director of the Sundridge Park Management Centre, Mr. J. V. Connolly and Mr. P. B. R. Gibson, who were responsible for most of the lectures.

Sundridge Park, itself a magnificent example of the architect's art, is admirably suited to a residential conference of this sort. The original manor house was rebuilt in 1792 by the owner, Edward George Lind, who decided to replace it by a house designed on a grand scale by the best architects of the day. James Wyatt, a disciple of the Adam brothers, built the central block, with its classical pillars. It was completed in 1795. Four years later John Nash added the two L-shaped wings. The grand staircase is acknowledged as one of the finest of its kind in the South of England. The fine plasterwork ceilings are the work of Wyatt, and the lecture-room has a centre panel painted by Angelica Kauffmann.

Area Chairmen, 1957

ALL the LMBA Area Chairmen for 1957 have now been elected and have entered on their duties. The list is as follows:

Central Area No. 1, Mr. F. A. L. Collis (Collis and Co., Ltd.).

Central Area No. 2, Mr. S. J. Proops AMIHVE, MRSH (Yeomans and Partners, Ltd.).

Central Area No. 3, Mr. D. E. Richards, MIOB (R. J. Adams, Ltd.).

Central Area No. 4, Mr N. J. D. Pedlington (S. T. Pedlington and Co., Ltd.).

Central Area No. 5, Mr. E. J. Cook, BSc, AMICE, MIOB (Richard Costain, Ltd.).

Northern Area, Mr. A. T. Fairhead (Allen Fairhead and Sons Ltd.).

North Eastern Area, Mr. H. J. Horn, JP, MIOB (J. and R. Rooff, Ltd.).

North Western Area, Mr. W. R. Leddington (W. S. Try, Ltd.).

Southern Area, Mr. A Wisby (Wisby (Croydon), Ltd.).

South Eastern Area, Mr. T. H. Hanson, MIOB (Syme and Duncan, Ltd.).

South Western Area, Mr. R. M. Clift (Clift and Son Ltd.).

The Area Chairmen are being entertained to luncheon by the President before their first meeting on Monday, February 18.

Schedules of Daywork Charges

THE London Master Builders' Association have issued their booklet for 1957 entitled 'Schedules of Charges and Hirerates for Dayworks,' price 1s. This can be used for general application, but is prepared for particular use with the National Schedule of Daywork Charges.

SOIL STABILISATION

Pavements at Municipal Airport

IN a paper describing the construction of pavements at Southend-on-Sea Municipal Airport, by MR. T. BRIAN HILL, AMICE, and MR. K. H. GLYN WILLIAMS, AMIStructE, at a divisional meeting of the Institution of Civil Engineers, held in London on December 11, 1956, details of methods used, field tests taken, and the constructional problems encountered in the execution of this work were given. A summary of their remarks follows.

In early papers, presented more than 10 years ago, on the use of cement-stabilised soils in pavements, there was often comment on the over-enthusiastic promotion of the use of cement in stabilised soils with little or no granular material in them, when perhaps a few miles from the site there might be good granular materials the use of which would give a large saving in cement and would produce a better type of construction. It was also often regretted that the machinery available for soil-cement work was that developed primarily for agricultural use which produced inefficient mixtures with poor depth control and which were not robust enough for the job.

Although progress has been made in the development of machines, evidence given in the paper suggests there is still room for improvement both in mixing efficiency and robustness. Many recent articles also still promote the possibility of successful stabilisation of all types of soil with cement. The clay soils which occurred at the site under discussion in shallow pockets in the sandy soil were dug out; and whether it will ever be possible economically to cement-stabilise soils *in situ* other than those essentially granular is not discussed in the paper, but it still seems doubtful. So far as the sandy gravelly soils encountered at the site are concerned, however, there is no doubt that they have been successfully incorporated in a heavy-duty pavement and that they will perform in a similar manner to normal orthodox flexible-type materials under repetitional aircraft loading.

The use of cement stabilisation also has allowed the overall pavement depth to be reduced from that given by the accepted CBR design curves. It is suggested that 0.7 should be the factor to give this reduction but it should not be forgotten that this may apply only to the particular conditions resulting from the use of sandy gravelly soils which after all produce, with cement, lean concretes. Much more evidence will be needed before accepting the factor as applicable to all sites.

Since it is argued that the cement-stabilised layers will gradually and progressively crack under load, it is important that the layers, although not requiring to be of high flexural strength, should be prepared to a high density, otherwise excessive settlements will occur under load, particularly towards the end of a pavement life. The methods of compaction adopted, and the measure of their performance, should always, therefore, be carefully studied for any soil-cement stabilisation work.

One other aspect of cement-stabilised materials should also be noted. To produce successful heavy-duty pavements, the materials will always need to be surfaced, either with a bituminous surfacing or with high-quality concrete, both of which will themselves require to have a stability sufficient to resist the very high shear stresses produced in the surface by high loads and tire pressures of 250 lb./sq. in. and upwards. So far as heavy-duty airfield pavements are concerned, therefore, cement-stabilised soils can be used only in the pavement base and sub-base layers. The most promising aspect of cement stabilisation is that it frequently allows the use of cheaper locally occurring materials, which can probably be used to some extent in *in situ* work, instead of more expensive imported materials. It thus tends to reduce the normal high cost of heavy-duty pavements.

SOUTHERN COUNTIES FOREMEN AND CoW's

The Annual Meeting

AT the annual general meeting of the Southern Counties Council of Builders' Foremen and Clerks of Works, reports from the associations showed that membership now totals around 300. The annual report was presented by the retiring president, MR. A. G. BUCK, and we take the following extracts from his remarks:

General Review.—In general we have cause to be pleased with our efforts during the year, even though the results have not always come up to our expectations. Many years may have to elapse before we can become a real force in our industry, and by far the most important factors in this connection must be the numerical strength of the constituents associations and the quality of their members. In this connection I am strongly of the opinion that we as a council might to great advantage make a complete investigation into the reasons why we do not attract the great majority of general foremen and clerks of works into our associations.

Training and Education.—Our efforts in these directions have been greater this year than ever before. The week-end Study Courses held this year in collaboration with the Southern Counties Federation of Building Trades Employers were an outstanding success. Four similar courses are to be held in 1957, in various parts of the region, and it is hoped they will become a permanent feature in our work because their scope and possibilities are limitless.

Election of Officers

At the meeting Mr. H. A. Colmer, of the Bournemouth Association, was elected president for the ensuing year, while Mr. G. W. Smith and Mr. A. Williams were re-elected treasurer and secretary respectively. The council's annual rally will be held at Bournemouth on June 22.

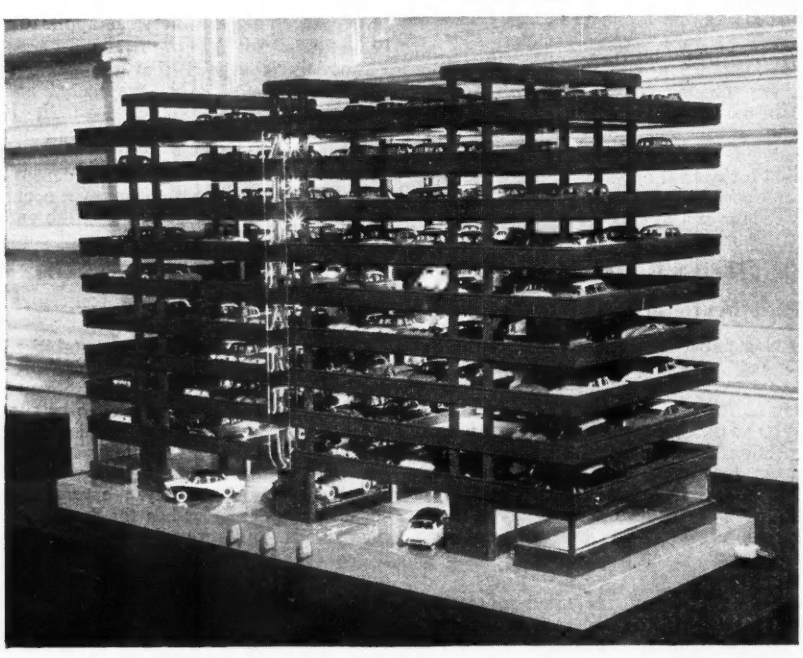
INQUIRY BUREAU

Sockets Up

Q.—A local builder laid for me a straight section of 4-in. soil pipe, the work being carried out in the conventional manner except for one point, the sockets pointing in the direction of flow. I am told that this is not correct. However, would an inspector be justified in refusing the use of this drain assuming that all other points are correct? GAUZE.

A.—The accepted method of laying drains, as obviously your correspondent is aware, is for the spigot end of the pipe to be pointing in the direction of the flow. The British Standard Code of Practice CP301 (1950) on Building Drainage states, in Section 5, No. 505, Pipe Laying and Jointing, that: (*b*) *Laying of Pipes. Pipes should be laid with the sockets leading uphill, etc.* . . .

It is very doubtful if any building inspector acting on behalf of a Borough Engineer and Surveyor would accept the construction indicated though in all other respects the work be perfect. H. O. D.



VERTICAL VEHICLE PARKING.—The third example in recent months of a lift-served system of car parking was demonstrated by means of a fully working model by the inventor, M. Andre Thaon, recently. Known as the 'Zidpark,' a prototype is to be erected at Southall by Taylor Woodrow, Ltd., to contain staff vehicles and to provide an example for further study. Extraction of cars is claimed to take an average of 45 seconds; complete mechanical handling and high-speed lifts contribute to a system of electronic control to attain this figure

DEVELOPMENT AND USE OF GLASS FIBRES

A Paper at the RSA

A PAPER on 'The Development and Use of Glass Fibres' was given by MR. A. HUDSON DAVIES, OBE, MA, at a meeting of the Royal Society of Arts, held at John Adam-street, WC2, on February 13.

Concerning the future of glass reinforced plastics, Mr. Davies said: 'By 1976 complicated structures such as railway passenger coaches, buses, aircraft, will commonly be made in glass reinforced plastics. Ships bigger than 100 ft. long are possible. Roof-lighting for buildings will be a commonplace, and laminates may offer the way to completely prefabricated walls embodying weather-skin, insulation, and an internal finish in one integral standardised component.

'By then there will, of course, be new resins, and maybe even new reinforcements such as metal fibres, or new synthetic fibres. Or the fibres may for some purposes be replaced by glass flakes, like mica. But in an expanding field of opportunity it is likely that glass-fibres will hold their place. Nearly always a new material is first thought about and designed as if it were an old material. The combination of strength and plastic qualities in design, and in moulding and joining processes, so that big monolithic structures can be made, is a new one. In time it will create new habits of thought; but new jumps of the imagination will also be required before the possibilities can be fully realised and fully used.

OBITUARY

W. Burnie, MIMunE

THE DEATH took place on February 7 of Mr. W. Burnie, MIMunE. Mr. Burnie, who was 57 years of age, had been Engineer and Surveyor to Stokesley RDC since October, 1950. Prior to taking up this appointment Mr. Burnie was Engineer and Surveyor to Shildon UDC from 1938. He served in both the 1914-1918 war and (as Captain in the Royal Engineers) in the last war.

Robert F. Wilson, FRSA

WE regret to announce the death, on February 10, after a short illness, of Mr. Robert F. Wilson, FRSA, Art Director of the British Colour Council.

BOOKS RECEIVED

HEATING AND AIR-CONDITIONING OF BUILDINGS. 3rd and revised Ed. By Oscar Faber and J. R. Kell. (London: Architectural Press.) Price 65s.

ENGINEERING STRUCTURAL FAILURES. By Rolt Hammond. (London: Odhams Press, Ltd.) Price 25s.

SMALL COMMERCIAL BUILDINGS. By R. W. Snibbe. (London: Chapman and Hall.) Price 108s.

DRAINAGE AND SANITATION. 11th Ed. Revised by L. B. Gumbrell. (London: B. T. Batsford, Ltd.) Price 21s.

AN AMERICAN ARCHITECTURE. By Frank Lloyd Wright. Edited by Edgar Kaufmann. (London: Architectural Press.) Price 84s.

New flats in the Avenue Foch, Le Havre

HOUSING IN FRANCE

By B. S. TOWNROE, Secretary-General, Franco-British Society

WHEN I was in France last year, I heard from some of those engaged in municipal life about the new Housing Bill, which was shortly to be discussed by the National Assembly. It is claimed that this new housing legislation may go far to remove the widespread criticism of this and preceding French Governments for their housing failures.

Here are the facts. During the past five years only 750,000 new housing units have been completed in France in spite of generous subsidies. During the same period more than double this number were completed in Britain and 3m. units were completed in Germany. A good deal has admittedly been done in rebuilding war damaged property in France, which included over a million houses either totally destroyed or so damaged as to be uninhabitable. But since the war the increasing flood of people leaving rural areas and crowding into cities and towns, and the rise in the birth rate, has complicated the problem. Public money, partly paid by French taxpayers, and partly from American sources, has been spent extravagantly. In spite of all efforts, housing conditions are deteriorating, and in some of the towns I visited recently I saw how dwellings had collapsed from old age. It is officially stated that at the present time only 5 per cent. of those who have been recently married have been able to find accommodation in a flat that is not insanitary, and 25 per cent. of the newly married have to live with their parents.

I have been lucky enough to visit myself some of the new flats that have been built not only in Paris but in such places as Nice, Marseilles, Orleans and Caen, but they are expensive and the system of subsidies in France is even more illogical than that in Great Britain until recently supported by successive Governments. In France it is necessary to raise considerable capital in order to obtain a subsidy for private building, and so naturally the richer citizens have received most of the public money available. There is much criticism, not only by Communists, but by many students of housing, of the Avenue Paul Doumer in Paris. This has aptly been called 'A State Subsidised Millionaires' Avenue.'

Out-dated Organisation

The organisation of the building industry in France is old-fashioned, if not archaic. The Minister of Reconstruction, in a statement to the Press, has frankly admitted that at least 300,000 housing units ought to be built every year for the next 20 years in order to meet the most urgent needs. He pointed out that to build a minimum of 100,000 dwellings each year there were in all only 300,000 building operatives available. In order to build a quarter of a million houses it would be necessary to more than double the present number of operatives unless the period employed in building a dwelling was substantially reduced. He pressed for what he called the rationalisation of the French building industry and for a reduction of the cost of building by at least 25 per cent.

Whenever I take French architects and builders around housing estates in England, they are amazed at the comparatively low cost of house building, which, of course, seems to us to be very high indeed. Last year, according to French official figures, there were some 220,000 'firms' responsible for the building of 208,000 houses. Most of these 'firms' were, of course, one-man businesses, and as many had little or no capital, this has meant many false starts. Actually, at the beginning of last year it was stated that there were 283,000 dwellings started, but not completed. This has led to great waste of capital, materials and labour. The cost in France of an average small building unit at the beginning of last year was £3,000 and since then costs are still being forced up. Building operatives are being called up to serve with the army or air force in North Africa. Income tax is being increased by 10 per cent. House builders are nervous about the future and are reluctant to risk their own or any one else's capital.

The present government have brought forward a new Bill which was expected to be passed by the autumn. Its main object is to encourage the building of housing units to be let, the majority to be built by mass-production. It is hoped that with the inducement of capital, to the extent of £750m. in the next five years, contractors will take advantage of the low borrowing terms offered and will use modern methods to build low-cost dwellings to be let.

Financial Guarantee

The new Bill proposes to give a guarantee of state money to builders to cover a five-year programme, and it is believed that this may tempt housebuilders to buy machinery and equipment, so as to build units by the hundred, instead of in penny packets. Those responsible for the Bill hope that by 1958 units will be built at the rate of at least 300,000 a year. In areas where slums have become particularly bad, and where there is also a need for widening narrow roads, this five-year programme will be extended to ten years.

All this means drastic control of building. This will not be popular with many builders, but without doubt the present swollen demand for luxury building must be reduced, and the present illogical subsidy system will have to be reorganised, if the present housing shortage is to be met.

Above all, it has to be remembered that most French people are accustomed to far lower rents than we can imagine in this country. When I visited before 1939 some of the mining estates in the colliery areas of France I was surprised to learn that the rents were in some cases as low as a shilling a week. These absurdly low rents were, of course, partly responsible for so many French buildings falling down for lack of proper repairs. The aim of the new legislation is to provide for the working-classes of France flats to be let at about £2 per week, with reductions for families with children, to about 15s. a week.

Recreation Ground for Housing

So critical has the position become relating to building land in Liverpool that the Corporation estates committee is recommending the sale to the housing committee of 5½-acres of the children's recreation ground not far from the city centre for housing purposes.

Eventually Sefton Park may be encircled by blocks of multi-storey flats some of which it is proposed to erect on the playground.

The estate committee is to seek powers to control the types of buildings to be erected, the materials to be used, and the general appearance of the buildings.

The Builder Review of PLANT & MATERIALS

New Steel Roll Doors

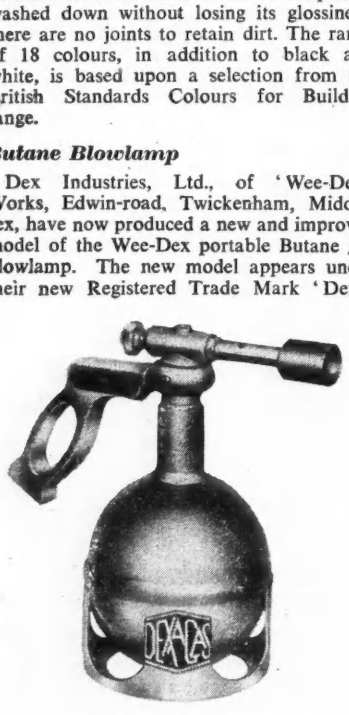
GOLMET, LTD., of Virginia Park, Caerphilly, have added a new design to their range of roller shutters. After 18 months of experimenting they have completed a new type of roller shutter using a number of new features. The curtain of the door is made of single sheets suitably corrugated and riveted. The curtain runs in steel channels on nylon washers and is electro-zinc coated by a newly developed process. The curtain is spring-loaded and, therefore, can be raised or lowered with the greatest of ease. The door is fire-proof, quickly installed, rust-proof and can be painted if desired. It is being manufactured in two standard sizes—7 ft. wide by 6 ft. 8 in. high retailing at £17 10s., and 8 ft. wide by 6 ft. 8 in. high retailing at £18.

Tile-like Wall Finish

In hospitals, schools, factories and many industries, glazed tiling has long been considered the most hygienic type of wall covering. 'Tylex,' a tile-like finish for walls, by Tretol, Ltd., The Hyde, London, NW9, is claimed to be the complete answer to the need for a very hygienic glazed wall surface. It is applied like a paint, and the hard abrasion-resistant surface can be frequently washed down without losing its glossiness; there are no joints to retain dirt. The range of 18 colours, in addition to black and white, is based upon a selection from the British Standards Colours for Building range.

Butane Blowlamp

Dex Industries, Ltd., of 'Wee-Dex' Works, Edwin-road, Twickenham, Middlesex, have now produced a new and improved model of the Wee-Dex portable Butane gas blowlamp. The new model appears under their new Registered Trade Mark 'Dexa-



Butane blowlamp

gas.' The new blowlamp lights instantly without priming and burns continuously at full bore for 2¼ hours from one small cylinder of gas. The blowlamp head is extremely robust, the nozzle and its stem being turned from one piece of solid steel. The new design brings the 'hot spot' of the flame well outside the nozzle thus giving more heat for the same expenditure of gas.

Portable Hydraulic Shear

Independent of all external power supplies, the 'Carricut' portable hydraulic shear, manufactured by Copelaw, Ltd., Mowden Hall, Darlington, Co. Durham, is an entirely new portable shear. The 'Carricut' can be taken single-handed by one man to the work and will cut steel or iron rods, wire ropes and cables and chains quickly and cleanly, without flash, by arm-power alone. There are five models available at the moment the largest, with or without remote control, cuts wire ropes of up to 2 in. diameter and electric cables up to 3¼ in. diameter.

Lightweight Aggregate

Since August, 1955, the Cementation Co., 20, Albert Embankment, have had erected at Battersea Power Station, by Sinterlite, Ltd., two kilns to convert all pulverised fuel ash produced there into a nodular aggregate, 'Terlite,' which has a weight of 48-55 lb./cu. ft. (depending on size). Outlets, where its light weight are invaluable, will be for roof and flooring members and screeds. High grade building blocks will no doubt absorb a substantial proportion of the make, while the development of lightweight concrete either cast *in situ* or as precast members of panels, can now be accelerated. Test results obtained from samples of Terlite indicate that blocks made from it show strengths of up to 3,000 lb./sq. in. with both moisture movement and drying shrinkage down to 0.025 per cent. A brochure, 'The Cementation Way to Lighter Building,' is available.

Four-wheel Drive Shovel

A machine which first appeared at the Public Works Exhibition last year in prototype form has now passed tests under winter conditions and is now in production. It is the four-wheel drive shovel manufactured by Whitlock Bros., Ltd., of Great Yeldham, Essex, and comprises an adaptation of their 'Dozaloda' machine mounted on a Fordson Major Tractor with Roadless four-wheel drive conversion. This 'Dozaloda' will excavate as well as load and the 5/8 cu. yd. shovel can instantly be replaced with a 6-ft. bulldozer blade; both are under fingertip control with double-acting rams operated from control valves alongside the driver. Other attachments include crane jib, fork lift, ripper and so on.

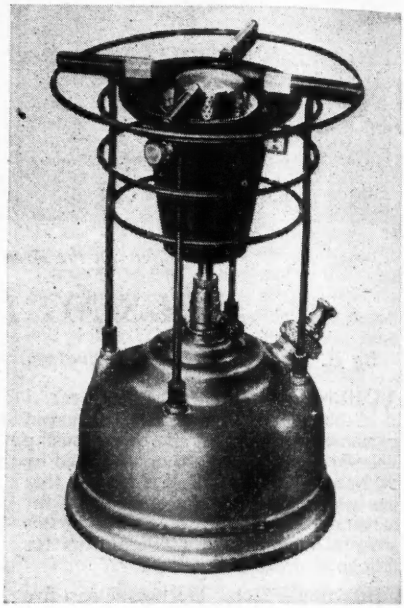
The Dinkum Digger, a Dump Skip, Compressor, Transport Box, etc., can also all be fitted with the Dozaloda in position and a special cab has been designed suitable for use with all this equipment.

Related Paint Range

A year ago Walter Carson & Sons, Ltd., offered the trade a range of 24 colours, all of which were available in four different finishes, glass, eggshell, flat and emulsion paint. Now the range is being increased by the addition of three new colours, Pale Lilac, Lilac and Tuscan Pink, in the 'Ultralux' range.

Cooking-Heating Stove

The Tilley Lamp Co. has introduced a new cooking-heating stove, model C.S.56. This has already met with some considerable success in the United States where it is being sold not only for picnic purposes, but to the building and contracting trades. There are none of the usual pricker wires



Tilley stove

to lose, an automatic self-pricking device being included in the vapouriser. It is claimed it will burn for 4½ hours on 1½ pints of paraffin, and will heat two pints of water in 4½ minutes. There is a simple conversion set to enable the Tilley storm lantern, model X246, to be converted into the cooking stove.

Group Plumbing Specifications

A 'Manual of Group Specifications' has been published by Peglers, Ltd., Belmont Works, Doncaster, to save detail work necessary in preparing plumbing specifications. By referring to the manual and quoting by number one of the 32 group specifications, the designer can order all the fittings for a particular bath, sink or basin unit. Also included in the manual are comprehensive details of the fittings, most of which are made to BS1010 and chromium-plated to BS1224. Copies of the manual are available free of charge.

Stabilised Flue Draught

To ensure a constant flue draught to help obtain maximum combustion efficiency, a flue draught stabiliser is considered an essential part of most automatically fired boiler installations. A new draught stabiliser, manufactured by Hopes Heating and Engineering, Ltd., Smethwick, Birmingham, consists of a balanced damper in an

aluminium frame which automatically adjusts itself to maintain the desired draught through the boiler in spite of variations in chimney draught brought about by changes in atmospheric conditions.

The stabiliser is housed in a heavy cast iron frame for building into a chimney. The damper can be readily adjusted from outside and is made in two sizes for flues with cross-sectional areas ranging from 70 to 500 sq. in.

Catalogue of Bricks

A brick catalogue recently completed for publication, and which is designed to list and illustrate a wide range of brick fittings which are constantly in demand, is available from Broad & Co., Ltd., 4 South-wharf, Paddington, London, W2.

High-strength Polythene Tube

Following the introduction of 'Plastronga' polythene fittings and 'Polyorc A' polythene tubing, the Yorkshire Copper Works, Ltd., Leeds, have now started the manufacture of 'Plastronga' high-strength polythene tubes made in the same high-strength material as the fittings. The tensile strength of 'Plastronga' tubes is approximately 3,600 lb. per sq. in. compared with 1,400 lb. per sq. in. required of ordinary polythene tubes to BS1972.

Bitumen-Asbestos Sealing Compound

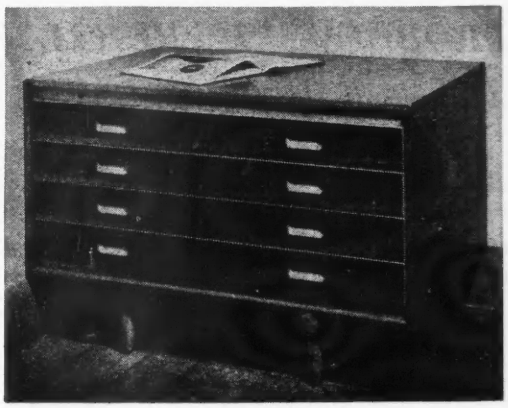
Charles Cleeve & Co., Ltd., Hope House, 45, Great Peter-street, London, SW1, are now marketing a new flexible black bitumen asbestos sealing compound under the trade mark 'Plax.' This compound, it is claimed, can be used at temperatures up to 350 deg. F., and is a semi-stiff paste which will retain its working properties for an indefinite period. In 7-lb. and 14-lb. tins.

Accepted by 'Design Review'

The new Fordham 'Cleanline' cistern has been accepted by the Council of Industrial Design for inclusion in 'Design Review.' It is available in colours ivory, primrose or green at the same price as white. Full particulars may be obtained from Fordham Pressings, Ltd., Dudley-road, Wolverhampton.

New Waterproof Cement

An hydrophobic cement which does not deteriorate when exposed even over many months to rain or damp atmospheric conditions has just gone into production, following exhaustive tests. Details of this important discovery are given on page 342 of this issue. Developers and marketers: Hydrophobic Cement, Ltd., Gerrards Cross, Buckinghamshire.



NEW FURNITURE.—This plan filing cabinet is part of a standard range designed exclusively for Russell Furnishings, Ltd., Sweden House, 13, Stratford Place, London, W1. Designer: Professor R. D. Russell, MSIA, RDI ; materials, mahogany with Rio Rosewood front

TRADE NEWS

Export Contract

ACROW ENGINEERS (EXPORT), LTD., have secured a contract for the supply of steel formwork for the erection of pumping stations, tank forms and port terminal installations for a NATO project in Turkey. The work is being carried out as a joint venture by Costain-John Brown, Ltd., of London, and Williams Bros., of Tulsa, Oklahoma, and the Acrow formwork contract is valued at £131,000.

Distributors Appointed

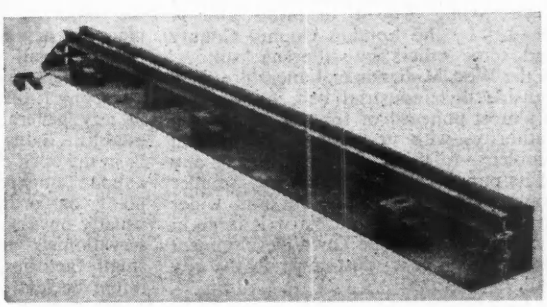
British Plimber, Ltd., manufacturers of wood chipboard, announce the appointment of C. B. North, Ltd., of Hedon-road, Hull, as main distributors for all grades of their product, 'Plimberite.'

Colade Bitumen Emulsion

As a result of the steady increase in the cost of production and distribution of Colade and the consequent equally steady reduction in profit, Dussek Bitumen and Taroleum, Ltd., has recently entered into a contract whereby its production of bitumen road emulsion in England and Wales is being marketed by Lion Emulsions, Ltd., of Lion House; Red Lion-street, Richmond, Surrey, solely under the name 'Lion.'

New Address

Evode, Ltd., of Stafford, has moved its headquarters into a new two-storey office and laboratory block, specially designed and erected for the company on their 9½ acre site at Common-road, Stafford, where the major production is carried out. The new telephone number is Stafford 2241 (five lines).



RAIL-ATTACHED ROAD FORM.—A recent development by Rapid Metal Developments, Ltd, 47, Victoria Street, London, SW1, in which their 10 ft. road form has a length of 20 lb./yd. rail welded on the outside for the support of modern mechanical concrete placing and finishing equipment

Selling Agents

The Kingsland Engineering Co., Ltd., 25-37, Hackney-road, London, E2, have been appointed the sole selling agents for Wales and the South of England for the sale of 'Scott' power bar croppers and bending rolls.

New Brochure

Rhodes Chains, Ltd., Carlisle House, 8, Southampton-row, WC1, have prepared a colourful new brochure portraying the simplicity of operating double-hung sash windows by the adoption of their unique sash pulleys, and phosphor bronze riveted sash chain which eliminates dangerous and expensive cords and ensures life-long service. Brochure No. 1040 is specially prepared for the easy reference of architects and estate owners who, with the prospect of having to recondition properties as a result of the anticipated decontrol of rents, will be seeking the most economical and permanent method of overcoming their sash-line problems.

Continental-British Agreement

A vast Saar steel and iron works has purchased the rights to manufacture under licence a new British steel slotted-angle construction system, an invention which enables temporary or permanent structures to be erected very speedily for almost any purpose. The British company is Chevron Structural Units, Ltd., of 7, Victoria-street, London, SW1, and the Continental firm in question is Rochling Eisen-und-Stahlwerke, of Volkingen, Saar.

Information Booklet

Philips Electrical, Ltd., of Century House, Shaftesbury-avenue, London, WC2, have published a fully-comprehensive booklet on the functions and applications of the ultra-violet germicidal tube, commonly known as the TUV tube. Entitled 'Philips Germicidal Tubes for Food Protection, it is a 20-page publication with more than 40 half-tone illustrations and diagrams relating to specific applications in the food industry.

Flats for Hong Kong

The Hong Kong Housing Society has recently completed the construction of two modern blocks of flats. These buildings are part of the Healthy Village Housing Scheme, and in the construction of the verandah railings about 12,500 sq. ft. of BRC 'Weldmesh' was used.

PROBLEMS IN RURAL PLANNING

A Paper at the RICS

The complex character of the planning problems of rural areas was discussed by Mr. Robert L. Stirling, AMICE, MTPI, etc., County Planning Officer, Lindsey County Council, in a paper on the above subject which he read at a meeting of the Royal Institution of Chartered Surveyors on January 28. Following are extracts from the address :

The General Pattern

SINCE I must generalise, said MR. STIRLING, most of my problems of rural planning must be illustarated by reference to an average provincial county. Here you will find a pattern of human settlement and landscape evolved through the centuries from a succession of nation-wide influences like the enclosures, the industrial revolution, and the coming of the motor car. There are a few sizeable industrial towns, which, even if not rapidly expanding in population, show a continuing tendency to expand physically into hitherto rural areas. Within easy travelling distance there is a substantial demand for building sites tacked on to any village, or even in isolated positions —a definite impetus towards growth and change deriving from the personal desires of many townsfolk and the financial gain to those who build to satisfy their desires. This is the suburban rural area—the new 'subtopia.'

Beyond it lies the countryside proper, studded with small villages and a few market towns. Here the changes of the past century are less apparent. There is a decline rather than growth of population —a lack of incentive to develop in the ordinary sense. Indeed that is the whole planning problem, and one to be clearly distinguished from the problems of the suburban rural area; a problem not to be solved by the preparation of any ordinary development plan which optimistically allocates land for various uses which are never likely to materialise; a problem rather of how to provide the dwindling numbers of true country folk in these areas with better social facilities, better housing, public services and transport, more opportunities in education and employment.

Having referred in some detail to many aspects of the problem under the headings of Green Belts and Dormitory Development, the speaker continued as follows: —

The Countryside

Now I must turn to the planning problems of the really rural areas—the countryside beyond the green belt, beyond the dormitory village of the sizeable industrial town, beyond the reach of any urban or industrial influence. What do we find? A centuries-old pattern of villages each of which not so very long ago was a self-supporting agricultural community with its own minor industries and crafts serving the farms or processing their products, its own squire, parson and schoolmaster. At intervals there are a number of small market towns of perhaps 3,000 to 10,000 population, established for the disposal of farm produce and the surplus of village industries, and providing the countryman with all he then sought in the way of shopping, entertainment, and a real day out.

The physical pattern survives and is dearly familiar. But the social and economic conditions from which the pattern evolved have changed out of all recognition. Since the farming depression of the 1870s the agricultural population has been halved; there is still a discrepancy between agricultural and industrial wages; the village industries have gone and with them the chance of any employment other than on the farms. The school may survive, but not always, in an indifferent building. The Hall and perhaps the vicarage are empty. Many of the houses are much as they were a century ago. Even if the water mains and electricity cables are in the village, there is still no hot water or light switch in many of the cottages. And the young folk go on leaving. In those little market towns now serving a much smaller population, trade has diminished, any natural increase of population has been cancelled out by migration—again mostly of the young folk who cannot find enough opportunities—rate revenue is meagre, and the local council waits like Mr. Micawber for 'something to turn up.'

The Market Towns

Our market towns are gradually ceasing to be the focal points of life in the countryside. Their greatest need is for new industry and new population. The key to this problem of re-invigorating them was given in the Barlow Report 16 years ago. I quote—'decentralisation of industries and industrial population'—'encouragement of a reasonable balance of industrial development'—'further development of existing small towns.' Admittedly there have been movements in this direction where the problems of overspill and congestion are most acute.

There are the favoured few country towns being wooed or even already wedded by the London County County and some others by different 'suitors' in the West Midlands or Lancashire area. Outside this industrial belt, however, it is almost unheard of for any large town authority—with or without an overspill problem—to think of decentralising any of its population or industry to a smaller country town. 'Wider still and wider shall thy bounds be set' is writ large in the civic charter. The Town Development Act remains in its dust-cover in the city hall.

To start the ball of expansion rolling, many small country towns go on trying independently to lure the small factory or even the branch factory, but their efforts are unavailing for a number of reasons—the industrialist's doubts about an adequate pool of labour, and the housing of his key workers; the lack of buildings suitable for adaptation and his increased transport costs to his markets; the Board of Trade's preoccupation with the development areas and the new towns. Quite apart from these difficulties, the country town authorities themselves have a lurking fear of the obligations and financial consequences of any material expansion.

Agricultural Labour Force

The drift of population from extensive agricultural areas is a phenomenon familiar to us all. In my own county during the past 30 years, three-quarters of the area in rural parishes has shown an absolute decrease in population. One of the main reasons why this trend is so universally deplored is the reduction in the supply of labour for the farms. Now while there may be areas where the supply fails to meet the demand, there are many others where agriculture as it is now organised cannot offer employment to the natural increase of population in the villages. That is one reason why the youngsters leave. In agriculture, as in any other industry, the wages and standard of living for the worker and the farmers' prosperity depend upon the achievement of the highest possible net output per man. New methods of husbandry, mechanisation, central management of several farm units are all directed towards this end. Hence the 60 per cent. increase in output since before the war has been achieved with scarcely any increase in the regular labour force. Even if output goes up further with the new promise of capital for re-equipment, there is no indication that the demand for farm labour is likely to be much increased if at all. If, with increased efficiency something like parity of basic wage levels can be achieved with the industrial worker, then it may be that agriculture will be able to recruit locally all the labour it needs to replace the older generation—and those who do not choose farm work will continue to drift to the towns.

Industry in the Countryside

It has been argued that this 'drift' could best be prevented by carrying decentralisation of industry a stage further and establishing small factories in the principal villages of the remoter countryside. The pros and cons of this were fully examined in the Scott Report, with the majority conclusion that the proper place for new industry in rural areas was in the small market town. Knowing something of the difficulties of even attracting it there, I see little or no future in any general policy of trying to re-establish industry in villages themselves or in the open country. It does sometimes happen unexpectedly, *e.g.*, the atomic plant or ordnance factory—but then usually on a scale which alarms the preservationists and the farmers. Although small factories, more widely dispersed, might be less disruptive and more bene-

ficial, they would be most vulnerable to any economic draughts, and there must be very few industrial concerns who are willing to pursue the idea extensively.

Hence I think we must face the fact that in the countryside generally, outside the range of easy travel to industrial or market towns, employment opportunities will be restricted to agriculture and the minor trades and services required to serve the farmer and agricultural worker. This suggests there can be no re-population of the countryside or general 'back to the land' movement and that our policies and plans should be based on maintaining the population at about its present level and preventing further decline. The key to this lies in the provision of services to the countryman comparable to those enjoyed by the townsman, and in satisfying his social needs.

Services and Social Needs

The first problem which confronts the authorities responsible for providing services to the villages and countryside is that capital available for rural development has been for so long, and still is, insufficient to make up the backlog of years of neglect. The second is that in supplying almost any service to widely scattered and small communities, returns on capital invested are so meagre that grants or subsidies, open or concealed, are always required to meet debt charges or other overheads. That goes for housing, water, sewerage, electricity, transport, schools, village halls, playing fields, or any other social amenities. And the third problem arises from the multiplicity of the authorities concerned, each doing what they feel best with limited resources, responsible to or dependent upon the sanctions of different Government departments, and subjected to parochial pressures.

Because of the inability of all the authorities concerned to make good long-standing deficiencies in services to the rural areas in anything like reasonable time, certain trends of movement of the rural population have become noticeable in recent years—trends which point to a gradual reshaping of the pattern of rural settlement. Families are leaving the isolated cottages. There are about 150 standing vacant and derelict in one rural district alone in my county. People in small hamlets with little hope of adequate services are moving to the larger village where better services and social life can be enjoyed, or where there is a better prospect of these things—and particularly to those villages connected by a good 'bus route to the nearest town with its other avenues of employment.

Policy and Programme

These trends towards reshaping the pattern of villages and the concentration of major services in a selected few may alarm the preservationists and some farmers, but I believe they will go on. They suggest the basis of a policy and programme implicit in many county development plans where the 'selected villages' have been marked after careful survey of existing services and prospects.

What is now wanted is a wider acceptance of the policy by the multitude of authorities concerned. There might then be some co-ordinated programme for the provision of all essential services to the selected villages, taking them in an agreed order of priority—a housing scheme to fulfil the ordinary and replacement needs of the selected village itself and the smaller ones within a mile or two of it with the maximum number of new houses in the selected village itself; a new primary school; extension and connections of water and electricity; the new sewerage scheme; a playing field, etc.

A corollary to this is that some single authority should determine the total capital to be invested in the provision of services in a particular rural area in each financial year and its allocation between all the services required. This aspect of rural planning is at present overlooked, while responsible authorities continue to flood their respective authorising departments with schemes which lack co-ordination with those of other authorities and bear no recognisable relationship to any policy or programme of a county development plan.

The greatest need is now that those policies should be more extensively and clearly portrayed in the county development plan itself—on the 1-inch county map and maps to larger scale where necessary, that they should be more widely understood and officially approved.

THREE PUBLICATIONS

Architects' and Builders' Reference Books

THE ARCHITECTS' AND BUILDERS' COMPENDIUM, 1957. (London: The Compendium Publishing Co., Ltd.) Price 42s.

SPECIFICATION 1956. Edited by F. R. S. Yorke, FRIBA. Pp. 1,383. London: The Architectural Press, Ltd.) Price 30s.

THE ARCHITECTS' STANDARD CATALOGUES, 1957-1959. Volumes 1-4. (London: The Standard Catalogue Co., Ltd.) Price, to architects and surveyors, 126s.; otherwise, 150s.

THESE three publications, all well established on the bookshelves of architects and builders everywhere, have apparently one point only completely in common—every subject related to building design or decoration is covered by a selection of on the whole well-produced and informative advertisers' announcements. The designer, equipped with one only of these books (or the four volumes of the Standard Catalogue), should be able to select his sub-contractors and suppliers without recourse to any other publication. That, however, is not likely to be the real function of these publications. There must be something else to attract the eye before it is attacked, however subtly, by the clever advertisement. This matter is dealt with rather differently in each case.

The Architects' and Builders' Compendium is the oldest of the three, being founded in 1886 by the late John Ed. Sears, FRIBA, and this is the seventieth year of issue. It might be said to be divided into two main sections. The first half contains a mine of information that could be in constant use, i.e., a branded goods index, a register of architects, a register of builders, and 42 pages of general information which includes lists of British Standards applicable to building, and codes of practice, mathematical data, Government departments, and professional and technical building trade associations. This section also includes current prices of materials and current rates of wages, five pages reprinted from *The Builder* of April 16, 1956, presumably inserted for means of comparison only.

The second part is called the technical section and contains, under various classifications, building components in detail. These sections have usually a short technical write-up followed by an advertisers' section. The indexes to these sections are cross-referenced under the name of the manufacturer and the products. A most useful production.

Specification has been going on for 58 years and it confines itself to an extremely thorough analysis of building components and materials, related to British Standards as applicable in each section. Proprietary materials are described editorially, and technical subjects—i.e., design of steelwork—are covered adequately. The volume is a bulky one and might possibly be made more easy to handle if it were printed in more than one volume, sub-divided appropriately. This is what *The Architects' Standard Catalogue* has done, but even so, each of the three main volumes (No. 1 is the index and general information) have reached proportions where it is an effort to carry one, let alone all four. The contents appear to be a compromise between the two publications previously mentioned. The registers and lists of names in the first volume are more fully compiled, the technical section, more sparse in its information compared to the *Specification*, but more finely divided into sub-sections. These include sections on special subjects, such as 'Churches,' 'Cinemas, Theatres and Halls,' and 'Banks, Offices and Shops,' giving the relevant dimensions, regulations and a bibliography. In some cases these notes are amplified by sketches; more would be an advantage. *Specification*, for example, is very well supplied with thumbnail sketches illustrating important dimensions, and the *Compendium* has quite a few.

For some obscure reason the editors of the *Standard Catalogue* believe that the inclusion of prices with the advertisements will help as a guide to designers. The fact that this set of catalogues is meant to last three years before the next edition makes the inclusion of any figures much of a nonsense; in fact few, if any, advertisers have taken any notice of the publishers' request, and after a lengthy search one price only was found.

In general, for the pure scientific fact, take *Specification;* for the widest approach, including a little 'planning' and an honest approach to the trade's interest, take the *Architects' Standard Catalogue;* and for the most comprehensive set of nominal lists, architects, builders, suppliers, etc., take the *Compendium.*

*** All three publications can be obtained through *The Builder* Bookshop, 4, Catherine-street, WC2. Cash, plus 1s. for postage and packing, should accompany orders.

Prestressed Concrete in the Netherlands

RECENT PROGRESS REVIEWED

A PAPER on 'Progress of Prestressed Concrete in the Netherlands' was given at a meeting of the Prestressed Concrete Development Group, held at the Institution of Civil Engineers, in London, on January 24, by IR. A. S. G. BRUGGELING, the following summary of which has been issued by the Cement and Concrete Association.

Ir. Bruggeling commenced his lecture with a review of early applications of prestressed concrete in the Netherlands. The first applications, in 1948, were for simply supported beams for factory roofs; spans varied from 50 to 100 ft. and the beams were cast at the site. Some difficulties experienced—freezing of the grout, slip of wires in their anchorages, and excessive friction between cable and duct—were mentioned by Ir. Bruggeling. A footbridge at Waalhaven of 143 ft. clear span, electrification poles for Dutch Railways, and precast arch units for buildings were developments which followed in 1950 and '51. This early work showed the need for a body to establish close contact between designers and contractors, and as a result the Netherlands Prestressed Concrete Development Group (STUVO), which performs similar functions to its British counterpart, was founded on May 10, 1949.

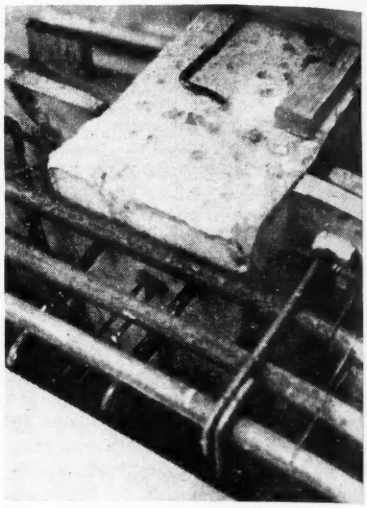
Early activities of STUVO related to the production of specifications for prestressed concrete; small sub-committees were formed to investigate in detail various aspects of this form of construction. The specifications and the reports of the investigating committees are still widely used and have formed essentially the basis for all prestressed concrete developments in the Netherlands.

Ir. Bruggeling then continued by outlining some of the problems overcome by STUVO. Fractures in the high-tensile wire supplied were the first cause of trouble; investigations reduced the permissible stresses in the steel to a safe figure. Extensive studies were necessary to establish fire-resistance gradings for prestressed concrete members, and figures were determined for various degrees of concrete cover. The poor frost resistance of grouting mortar led to difficulties in some structures, particularly where metal cable ducts were used. Tests by STUVO have been conducted, and are still being pursued, to determine the best mix for grout and the best methods of grouting.

Shell roof structures have been the most important development of *in situ* buildings in Holland and are becoming increasingly common. A special study committee to investigate methods for faster and more accurate calculation of stresses assisted this trend. The largest span shell roofs built in Holland to date are in a chocolate factory at Oosterhont; the factory consists of 22 bays each covered by a shell roof 39 ft. wide and 130 ft. long.

Ir. Bruggeling emphasised the Dutch preference for precasting and site assembly from the aspects of efficiency and economy. The workshops of the AKU organisation at Emmen were described and illustrated with slides as typical of the many factories of precast construction. The AKU workshops have a total floor area of 275,000 sq. ft. The beams used for the building were freely supported, with prestressed *in situ* edge beams. Roof slabs were placed over the upper flanges of the beams with ceiling slabs between the bottom flanges.

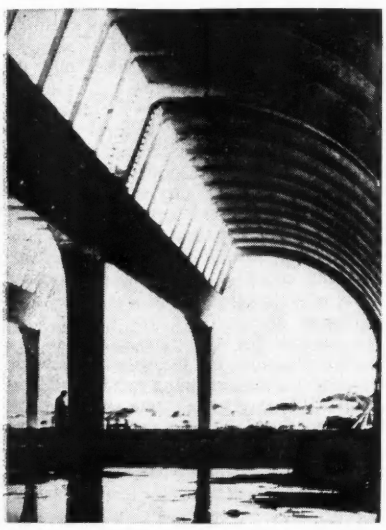
The Van Gelder and Zonen paper factory at Wormer was offered as an outstanding example of the advantages of precasting, allied with prestressing. The

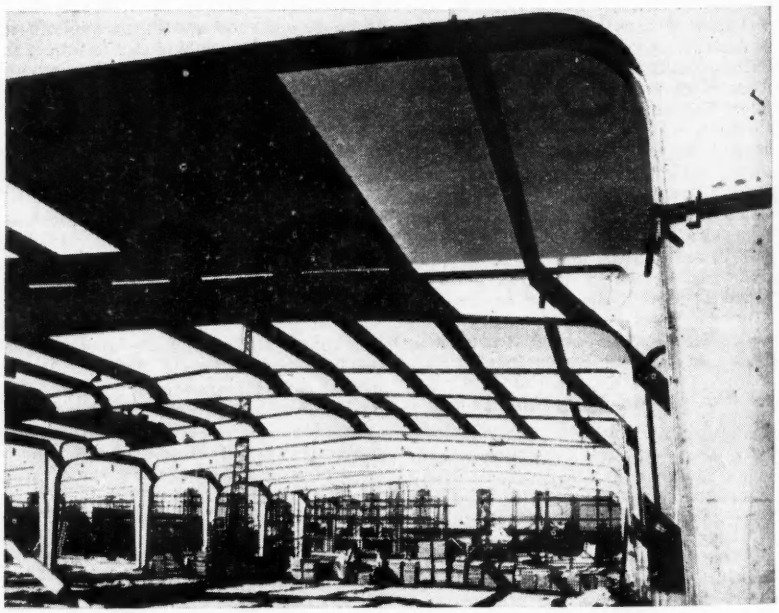


Prestressed beams coupled with edge beams by projecting mild steel reinforcement in the roofing of a factory at Emmen. The method was adopted to give better continuity between beams and hence greater stability

frame of the main hall, 400 ft. long, 65 ft. high and with a width between columns of 65 ft., was built from precast mass concrete blocks having a maximum weight not greater than three tons. The blocks were joined after assembly by prestressing *in situ*. Ir. Bruggeling described the erection procedure.

Two examples of the combination of *in situ* and precast concrete were presented in detail; the structures are a floor (at first floor level) of a hall for the Industries Fair in Utrecht, and a garage at Hertogenbosch. The floor at Utrecht, which consists of two bays, each 156 ft.





Left : Northlight shell roof (Jamin-Oosterhout). Right : Prestressed concrete frame for garage in Den Bosch

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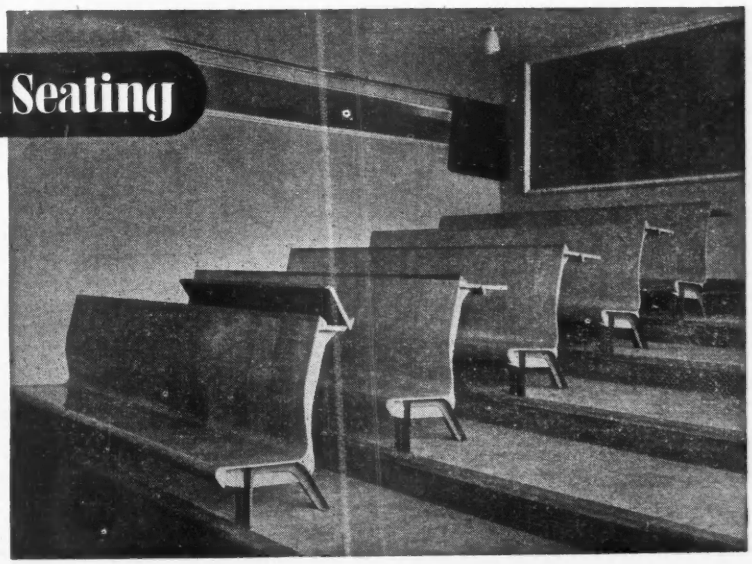

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square, was designed to hold material awaiting exhibition; speed of construction was, in this case, of the utmost importance.

A system was chosen in which precast prestressed main beams 156 ft. long rested on five *in situ* columns, 30 in. square and placed at 39 ft. centres; precast prestressed secondary beams at 13 ft. centres spanned between the main beams to support an *in situ* reinforced concrete floor slab, 6 in. thick. In the garage, the 170 ft. width is made up of two bays of adjacent precast prestressed concrete portal frames at 25 ft. centres. The two adjacent centre columns are fixed and outer columns are hinged at their base. Five straight cables of twelve 7-mm. wires were needed to prestress each cross member for the full width of the hall.

In the field of bridge construction, Ir. Bruggeling stated that all the prestressed concrete bridges built in Holland, with the exception of a few small slab bridges, were formed of precast units. He described with the aid of slides some details of the more interesting statically indeterminate structures, particularly connections of the beams above the points of support and elsewhere.

The use of continuous cables in the Amstel bridge in Amsterdam, the Drecht bridge at Leimiuden, and the Klaprozen bridge in Amsterdam was described. Connection by means of continuity bars was discussed where composite construction of precast beams with an *in situ* deck slab was used. Examples quoted included a ferryboat pier in Amsterdam, and the Ericalaan bridge over the Ypenburg-Burgerveen motorway. A large number of other slides were shown of bridges and viaducts to illustrate methods of connection suitable for different beam arrangements; altogether more than 100 prestressed concrete bridges have been built in the Netherlands.

Several special applications of prestressing were described by Ir. Bruggeling. A method of prestressing circular sewage tanks, designed to avoid creating secondary stresses, was illustrated by reference to a plant in Zeist. The method allows the tank wall to move relative to the base during stressing and anchoring. Some special precast products were also described; they included water pipes, piles, small beams for house floors, and railway sleepers.

To conclude the lecture Ir. Bruggeling emphasised the importance placed on tests in the Netherlands, both of complete structures and structural units. The testing to destruction of full-scale models of continuity members was also mentioned. Thorough testing under loading and overload was considered essential to determine safe design figures for more advanced structures.

PRESTRESSED CONCRETE

Election of Development Group Officers

THE result of the annual ballot for election to the committee of the Prestressed Concrete Development Group was announced at the annual general meeting of the Group held at the Institution of Civil Engineers on January 24.

Lieut.-Colonel G. W. Kirkland, MBE, MIStructE, of R. Travers Morgan and Partners, was elected chairman of the committee for 1957. Lieut.-Colonel Kirkland is also a vice-president of the Institution of Structural Engineers. Other members of the committee for this year are :

Vice-chairman.—Colonel W. Burrans Sykes, CBE, MIStructE.

Immediate Past Chairman.—J. Singleton-Green, MICE.

Engineers.—H. G. Cousins, MICE; R. F. Galbraith, AMICE; A. J. Harris, MICE.

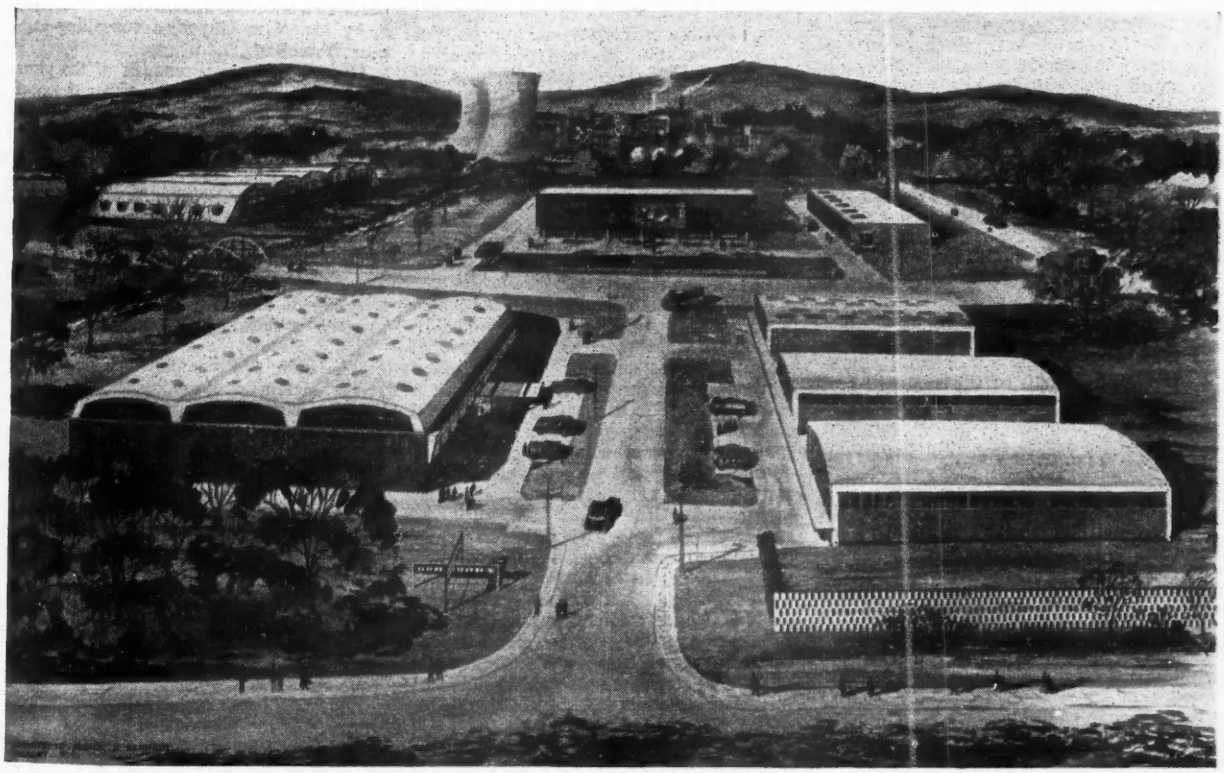
Architects.—G. M. Adie, FRIBA; E. G. Dean, LRIBA; Gontran Goulden, ARIBA.

Specialist engineers.—R. T. Betts, AMICE; E. W. H. Gifford, AMICE; W. M. Johns, AMICE.

Contractors.—J. M. Fisher, MICE; R. B. Hill, AMICE; A. Moller, MICE.

Products manufacturers.—J. Beattie, AMICE; D. M. Chaston, FPWI; K. R. Danhof, AMICE.

Manufacturers of prestressing steel.—C. F. Brereton, J. W. Gibson, A. E. Osborne.



PROJECTED INDUSTRIAL ESTATE, NORTHERN IRELAND.—The new industrial estate at Dunmurry, Co. Antrim, has been laid out in three parts, the first of which has been detailed and the contract let, by Munce and Kennedy, Architects. The clients are the Northern Ireland Ministry of Commerce. The first stage covers 40 acres

Rammed Earth as a Building Material

ADVANTAGES IN THE UNDER-DEVELOPED COUNTRIES

From a Correspondent

INCREASING attention is being paid in countries where conventional building materials are in short supply to the use of rammed earth in building construction. An interesting paper on this subject was recently prepared for the South Pacific Commission by Mr. G. F. Middleton, an Australian building research officer who has also worked for the United Nations as an expert on low-cost housing in the Middle and Far East. He contends that rammed earth buildings are particularly suitable for under-developed countries because only simple, low-cost equipment is needed for their construction and building methods are straightforward. Moreover, such buildings are permanent, offer excellent insulation against both heat and cold and are proof against termites, borers and rot.

Not the least of the virtues of rammed earth as a building material is the fact that a wide range of soils can be used so that it is rarely necessary to travel far from the building site in search of suitable materials. Mr. Middleton suggests that a good soil for ramming should contain not less than 50 per cent. and not more than 80 per cent. of sand, gravel and small stones, with clay of good quality making up the remainder of the batch.

Earth answering this description is normally found without much difficulty, Mr. Middleton claims. Even when the right type cannot be found, it is possible to adjust most soils by adding river-bed sand or soil, or both, to produce material approximating to the ideal combination.

Simple tests are suggested for determining the suitability or otherwise of any particular soil. The colour and 'feel' of the earth will help with the initial selection. Black or very dark soils usually prove unsuitable while red, yellow, light brown and white soils are likely to be successful. The texture can be gauged by rubbing a small sample of soil between thumb and fingers when grittiness denotes the presence of sand, whereas the clay content in the soil will feel silky smooth and adhere to the skin. With experience the operator learns to recognise the degree of grittiness or silky smoothness which denotes a suitable soil mixture.

Of several different methods of rammed earth construction, the rammed *in situ* (or monolithic) method is generally preferred because of its ease of operation.

When building a single-storey house by this method, the trenches for the foundations are first dug. On good soil, these foundations will consist of a six- to nine-inch layer of hard core the full width of the trench and about a foot below ground level. The top should be levelled off to provide a uniform and level base for operating the mould.

From the foundation up to the damp-proof course level the walls are made of rammed earth stabilised with some kind of water-proofing material (Mr. Middleton uses Portland cement when available). After the damp-proof course has been laid, the walls are continued either with plain rammed earth or with earth containing a smaller proportion of stabiliser than before.

Wall angles are constructed first, using specially-designed angle 'moulds' for the purpose. One of these is placed in position for the first corner of the building with its bottom edge resting on the foundation course in the trench and chocked in the trench to prevent lateral movement. Soil is then tipped into the mould to a depth of four inches and rammed down with a metal-headed rammer weighing about 14 to 18 pounds.

This process is continued by compacting four-inch layers until the entire mould is filled with rammed earth. As no time lag is required for setting, the angle mould can be removed, leaving the angle section of wall completed.

A straight-sided mould is next placed in position with one end lapped about six inches over the just-completed section. This mould is then plumbed, levelled and made firm when ramming proceeds as before.

In this way, by ramming the corner sections ahead and then the straight sections successively until they meet the corners, a full course two feet high is completed. At this point, moulds are placed in position above the completed course with six inches of the bottom edges of the shutters overlapped over it. Stop shutters for doors and windows are inserted where appropriate.

Window and door frames can be attached to rammed earth walls in several ways, one of the most popular being to set wooden blocks in the reveals of the openings at the time of ramming those parts. Frames can then be screwed or nailed to these wooden plugs.

An Indian Method

Floors of rammed earth can be surfaced in many different ways, and Mr. Middleton also describes an Indian method of constructing roofs of rammed earth. Some recent work carried out in India by Dr. S. Mehra, of the Karnal Building Research Laboratory, has shown how a house designed on the principle of a parabolic arch to contain both walls and roof can be constructed entirely of rammed earth.

One of the factors operating in favour of rammed earth construction in under-developed countries is the simplicity of the equipment required. Indeed, all that is needed is a corner mould, a straight mould and two or more rammers of between 14 and 18 pounds weight.

Moulds and rammers can be made by any average carpenter and although the metal parts should preferably be made by a blacksmith, it is possible, when neither smith nor metal are available, for the connections to be made by wooden bars tenoned into mortices in the shutters and held firmly by simple box wedges.

At the same time, however, Mr. Middleton warns against a policy of introducing rammed earth buildings of preconceived designs into any territory, irrespective of local conditions. A first essential, he believes, is a survey of indigenous materials, followed by an examination of the particular skills of local craftsmen. It is necessary, too, to undertake climatic and sociological studies and to apply the results to the design and location of buildings constructed with indigenous materials.

Thus, by studying all these factors, by applying the sciences evolved in research establishments and their laboratories, and sometimes adding to the skills and arts of local craftsmen those of craftsmen of other countries, it is possible to develop constructional methods and combinations of materials which are suited to the particular region concerned.

One of the most important results of following such a policy should be houses which seem to belong to their surroundings and which grow out of their background with the naturalness which is so often seen as the result of local crafts.

LONG-SPAN PRESTRESSED BRIDGES

A Paper at the Institution of Civil Engineers

A PAPER entitled 'Long-Span Prestressed Concrete Bridges constructed by the Freyssinet System,' was presented to members of the Institution of Civil Engineers at a meeting in London on February 5, by Mr. Yves Guyon, a consulting engineer from Paris.

The following is a synopsis of the paper written by the author: The paper describes briefly the considerations which lead to the choice of bridge type:—simply supported, continuous beam, portal, cantilever, arch or bowstring girder (a detailed analysis is given of the respective merits of each type); and the advantages of prestressed concrete over other materials are put in terms of relative economies in quantities and costs. The advantage in prestressed concrete construction of obtaining maximum fixity over supports is shown.

Some space is devoted to the design of cross-section and comparisons of existing bridge sections are made. Some general rules are given which assist in the preliminary computations and decisions as to span length, depth and thickness of beams, cables, etc. The design of piers, abutments, and foundations is considered at length, and the advantages of sloping legs for portal frames are emphasised. There follows a short section on design of concrete hinges and joints, and the methods of ensuring continuity of cables.

Methods of construction are classified into: precast, cast *in situ*, and combined precast and cast *in situ*. These classifications are sub-divided and each variation of method is described. Brief mention is made of some of the methods of reaction adjustment. Each of the foregoing sections of the paper is amply illustrated by examples of bridges already built and some still in the design stage. Finally, a section is devoted to the salient features of a number of less well-known bridges.

PROSPECT FOR PREFABRICATED PLUMBING INSTALLATIONS

By N. C. SIDWELL, MSc, MIStructE, ARICS

IN many ways, plumbing installations are akin to a modern engineering production, consisting of systems of pipes in lead, copper and iron connecting to tanks, radiators, sanitary fitments, etc., yet we find that the traditional craft techniques together with site assembly methods are still being employed on repetitive work, such as housing, throughout the building industry. A little progress has been made since the war in reducing the number of varieties of plumbing fixtures and fittings, and the general adoption of copper piping with its improved jointing techniques has helped to reduce site man-hours. But there are many plumbing processes that should be done in the workshop or factory, where working conditions are far more suitable.

Plumbing contractors cannot always be blamed for failing to appreciate the economy in a system embracing the maximum amount of off-site labour, for it is seldom that a small house type is designed for an economic plumbing system. A further deterrent to economic plumbing design is the uncompromising attitude of so many local authorities towards any change of any kind from the known and proved methods that have been successfully employed in the past. How often is one told, when remonstrating with a local authority official over a particularly stringent requirement, that 'we prefer to err on the safe side.' This is all very well, but so many authorities place different interpretations on the margin of safety to be observed.

It would seem that there are two ways in which plumbing installations in housebuilding can be designed to save cost: (1) By almost 100 per cent. prefabrication in the workshop or factory; and (2) by the prefabrication of selected elements of the complete plumbing unit so that an economic balance of site work and factory work can be attained.

If complete prefabrication is to be adopted, the first requirement is that the house must be designed for it and the local authority must be prepared to permit a compact system that involves a 'single stack' system into which *all* wastes can go; also there must be a considerable relaxation in the requirements for cold supply tank sizes, and expansion pipes must be allowed to empty into that tank and not go trailing through cold roof spaces to the colder outer air.

Plumbing 'panels' housing compact systems of pipes, jointed and fitted ready to receive the sanitary fitments, have been produced in America for a number of years, and in Germany a unit known as 'Vica' has been produced and consists of a prefabricated, self-supporting double frame of steel sheeting, carrying gas as well as hot and cold water services and drains. All the piping is accessible from a duct which is like a small cupboard, planned between the fitments in the bathroom and those in the kitchen.

These panels provide connections for the bath, washbasin, wc and bidet. The design of the flats did not, unfortunately, allow for a link with the kitchen fitments and these were piped by ordinary methods.

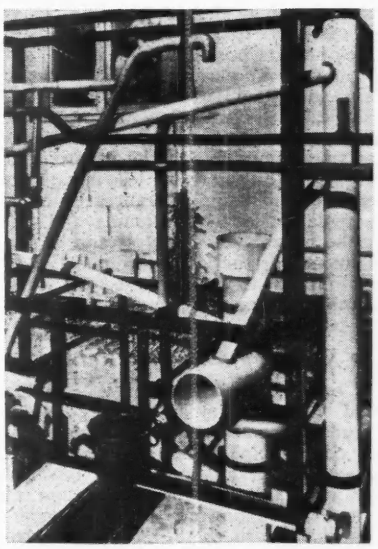
Prefabricating Selected Elements

Many authorities on plumbing matters are loath to accept the principle of total prefabrication, and argue that the installation of a necessarily bulky mass of concentrated pipework may well take more site man-hours than fixing separate units of pipework. There certainly appears to be a majority opinion in favour of the second method mentioned earlier, i.e., the prefabrication of selected elements of the complete plumbing unit so that an economic balance of site work and factory work can be attained.

Here again it is essential that the building be designed to accommodate a compact plumbing system, with all pipe runs cut down to a minimum. The house plan, so far as the plumbing layout is concerned, must be sufficiently repetitive to justify the extensive planning preliminaries so essential to off-site assembly and prefabrication. The plumbing installation must be laid out in detail on the drawing board and so accurately that bends, couplings, lengths of pipe, etc., can be measured from the drawing. As an alternative to this a 'mock up' of the installation can be made up on the site and subsequent measurements taken from it. It would probably be more satisfactory to do this because the average domestic building has an excessively high dimensional variation, and tolerances for this variation would need to be considered in the off-site work.

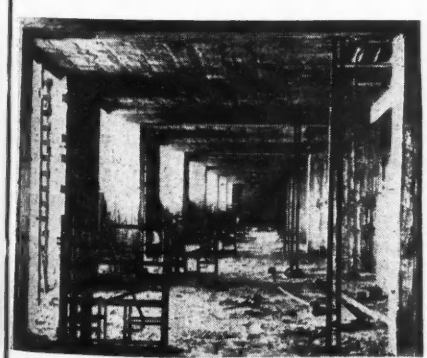
The very fact of having to admit the necessity for a prototype to be made up *after* the first of a series of houses is erected emphasises the serious difficulty of dimensional variation in building work of practically all types. The lack of modular co-ordination in the design and the absence of precision in the execution of the design on the site: these are the obstacles to successful preassembling and prefabrication, for the construction of a first house in a large scheme takes time, and it is not often possible to go forward with a single house—usually they will be in units of four at least.

Clearly, if factory methods of preassembling parts of plumbing systems are to be used, precise requirements must be known well before the actual construction starts, so that the necessary 'tooling up' can be done and production of the assemblies well on the way. A substantial margin of time between workshop production and site installation is always a prudent insurance against raw material shortages or labour difficulties. It follows from this that preplanning of plumbing assemblies is essential to early delivery dates and this preplanning can only work if building tolerances are drastically reduced to the extent that the finished building does not vary more than $+\frac{1}{4}$ in. or $-\frac{1}{4}$ in. from the detail drawings.



Close-up view of a prefabricated plumbing panel used in a large experimental block of flats in Milan

Several years ago the Lead Technical Information Bureau arranged for a time and motion study to be made of plumbing processes incorporating 'off-site preparation' methods wherever possible in the building of a group of three-bedroom houses. The plumbing installation in these houses followed the usual pattern—kitchen sink, bath and basin in bathroom, separate wc, normal domestic hot-water system, all wastes discharging into the soil pipe and each waste vented. It was found that there was a great deal of unproductive planning time on the site, when the individual plumber had to stand and consider what he needed for the particular job in hand and to make up his mind on the best approach to the job. This waste of time did not occur on the one house in the group which had been



Prefabricated plumbing panels in flats at Milan

selected for the incorporation of 'off-site preparation' methods, nor was there any difficulty over the availability of the various plumbing components for they were all ordered well in advance of requirements.

In the houses featuring ordinary site methods it was noted that certain components were found to be difficult to obtain during the course of the work, with the result that costly, complicated substitutes had to be used to avoid even more costly delays. Other interesting points in the report on this study were that cost control was facilitated by the predetermination of labour times and material requirements, bonus assessment was far more accurate, and the routine processes of assembly permitted a closer check on inefficient work.

As was to be expected in an investigation initiated by the Technical Information Bureau of the Lead Industries Development Council, all cold supply and distribution pipes were in lead and the main soil stack was made up from cast lead standard lengths with all waste pipes in lead also. It was claimed that when the pipe material used is lead it is possible to gain or to lose more than the normal building tolerances by hand manipulation when positioning and fixing the assemblies. This is quite a fair statement, for such a ductile material as lead piping is more suited to such assemblies than, for example, copper or iron piping.

Need for a Simple Joint

If only the advocates of lead piping could produce a simple joint of good appearance to compete with the many excellent copper pipe joints on the market, there might be an opportunity for lead pipe to regain its former position in domestic plumbing systems. I understand that efforts are being made to produce a suitable joint that will replace the familiar bulbous wiped joint.

Bathroom and kitchen costs in any house could be effectively reduced if enough of their dimensions were standardised and co-ordinated to permit prefabrication on a very large scale. If a module of say, 32 in. was to be firmly adopted by all designers, together with an 8 ft. ceiling, then manufacturers might be encouraged to produce storey-height panels, faced up in porcelain enamel or stove enamel, containing pipe runs, wastes fittings, etc., within the panels.

One 32 in. panel would accommodate the end of a standard bath and two panels would make up the length of it. Single panels would likewise do for the wash-basin and for the wc pan. This 32 in. module might be rather narrow for a doorway unless it was kept down to take a 28 in. door, but a suitable and sufficient window could be arranged in a single panel. The minimum sized bathroom would therefore work out at three panels by two, or 8 ft. by 5 ft. 4 in., and larger rooms could be obtained simply by inserting additional panels in the walls. In the kitchen a 32 in. module should suit sink, tub, washing machine, cabinets, etc., and the window could be the width of a single or double panel as required.

With such a system of modular co-ordination it should be possible for an architect to specify a size or type number for the particular bathroom or kitchen desired. The range might, for example, extend from one to eight, with a No. 1 set of panels for the very small low-cost house and a No. 8 for the larger and more expensive design. There could be 'right-hand' and 'left-hand' models, according to the position of the door in relation to the window, and altogether this ought to provide a sufficient variety of types to suit anyone who is prepared to sacrifice a little individuality in his bathroom and kitchen layout in order to save himself money.

Standardised ceiling panels on the same module could be prefabricated, and in these panels it ought to be possible to incorporate pre-assembled lighting and heating units. On the more expensive panel sets it might also be possible to incorporate an extract fan for ventilation purposes. The ceiling panels would be finished similarly to the wall panels.

The tooling up and equipment of factories to start the production of modular plumbing panels in line with these suggestions would be extremely costly in the first instance, and manufacturers would require convincing proof of the general intention of designers to provide for factory-made plumbing panels in the majority of new houses and of the good will of the industry, including the plumbing unions, with regard to the installation of the panels.

Combined New Building and Rehabilitation

THE LCC BRANDON ESTATE

IN our issue dated February 18, 1955. we referred to the fresh approach to the housing problem being tried out by London County Council. In principle this amounted to the combined use—in comprehensively planned schemes—of clearance and new building on the one hand and conversions and improvements on the other. The aim, to raise the standard of living conditions and amenities of whole neighbourhoods—preserving, modernising and extracting the maximum advantage from what is best among existing buildings and creating new buildings, open spaces and other amenities in place of what must be pulled down.

The council has been concerned with the problem presented by large areas of inner London which are in a state of obsolescence and which will create a formidable slum problem in the future unless the decay is arrested.

The first large scheme of rehabilitation and redevelopment to be approved by the council was at Brandon Estate, Southwark. Owned by them since January, 1952, investigations were made to discover if it would be desirable to combine thorough rehabilitation and conversion of structurally sound houses with eventual redevelopment of the remainder of the estate. It was eventually thought that the estate lent itself to treatment on a combined redevelopment and rehabilitation basis, and on October 9, 1956, a scheme was approved covering the major part of the estate, about 36 acres, of which nearly 26 acres will be redeveloped and the rest rehabilitated.

In the preliminary examination it was indicated that it would be possible to provide in the redevelopment section 11-storey point blocks. It is now proposed to construct six 18-storey blocks of flats of a new type sited to face the proposed extension of Kennington Park enabling an open lay-out to be used affording views of the park from the centre of the estate. The higher density of the eastern end will offset the lower density at the western end, where over 180 houses are being retained and converted into modernised dwellings and where the new development will be restricted in height to retain the character of the existing architecture.

Compact Planning

The new flats are compactly planned and use made of a new type plan evolved to give high local densities to offset the lower densities of rehabilitated areas. Besides the six 18-storey blocks there will be 15 blocks of flats (one of 10 storeys, two of five storeys, eight of three storeys and four of two storeys). There will also be one three-storey and eight four-storey blocks of maisonettes; one three-storey and two seven-storey blocks of flats and maisonettes; five blocks of terraced houses and five blocks of dwellings for old people. There will be 1,059 dwellings in all in these blocks.

Rehabilitation work will take the form of the conversion of 182 houses into 328 self-contained dwellings. The houses to be modernised consist of two, three and four-storey terraces. Most of the two-storey houses will be kept as single dwellings, suitably modernised.

The density over the whole estate, including new development and rehabilitation, will be about 38 dwellings (137 persons) to the acre. The total population being housed will amount to 4,952—3,740 in the redevelopment areas and 1,212 in the rehabilitated areas. Estimated total cost of the work amounts to £3,596,450.

The scheme is under the direction of the Architect to the Council, Hubert Bennett, FRIBA, although it was prepared under the former architect to the Council, Dr. J. L. Martin, MA, PhD, FRIBA. Officers taking part in the preparation of the scheme in the Architect's Department were H. J. Whitfield Lewis, ARIBA, Principal Housing Architect, assisted by E. E. Hollamby, ARIBA, Dip.TP(Lon) (architect-in-charge) and L. W. Lane, ARICS, AMTPI, Senior Planning Officer.

The scheme was prepared in consultation with the Valuer to the Council (J. E. J. Toole, FRICS, FAI) and the Director of Housing (R. J. Allerton, FRICS, AMIMunE, PPIHsg). The acquisition of the area has been undertaken by the Acquisitions Division of the Valuer's Department under the direction of the Assistant Valuer (H. T. Woolcott, FRICS). The rehabilitation work will be carried out by the Works Division of the Director of Housing's Department, under the direction of the Assistant Housing Director, Mr. C. W. Henderson, AMICE.

IN PARLIAMENT

By Our Parliamentary Correspondent

New Hospital Buildings

ONE of the matters on which information was sought from MR. DENNIS VOSPER, the Minister of Health, in the Commons on February 4 was the relationship of the costs of new hospitals to the number of beds they contained.

Mr. Vosper told Mr. Albert Roberts that experience in the building of new hospitals was as yet insufficient to provide information about the average capital cost for each bed provided in such hospitals.

MR. ROBERTS suggested that new hospitals in Britain were costing about £5,000 a bed, yet on the Continent there were hospitals being built, which were better equipped for research and had more amenities for the patients, at a cheaper cost than in Britain.

MR. VOSPER said that he would be interested in examining details about that, but he had been advised that costs in America were about double the figure Mr. Roberts had mentioned.

He said, in a written reply on February 6, that three new hospitals were under construction at the present time. They were mental deficiency hospitals at Graves Hall near Southport and Balderton near Newark, and the first stage of a general hospital at Swindon.

MR. BESWICK asked the Minister when he expected work to start on the new maternity ward of the Hillingdon County Hospital; and when he expected to start work on the next stage in the reconstruction of the hospital.

MR. VOSPER: Work on a new maternity block is expected to begin later this year and the reconstruction of the main hospital in 1958/9. Some 700 patients a day attend the out-patient and casualty departments, which are inadequate for these numbers and will be replaced as part of the reconstruction.

Health Centres

MR. PROCTOR asked the Minister what areas had a health centre under the National Health Service; and what proposals he had for extending the health centres provisions of the National Health Service Act.

MR. VAUGHAN-MORGAN, Parliamentary Secretary, Ministry of Health: Eight new centres have been so provided. In addition, premises were taken over in July, 1948, by six local authorities so that general medical or dental services could be continued there. Current restrictions on capital expenditure rule out further provision for the time being.

In a circulated statement he said that new health centres provided since July 5, 1948, were: Berkshire CC, Faringdon Health Centre; Bristol CB, William Budd Health Centre, Knowle West; London CC, Woodberry Down Health Centre, Stoke Newington; Nottingham CB, John Ryle Health Centre, Clifton Estate; Essex CC, Harold Hill, Romford Aveley, Thurrock; Gloucestershire CC, Hesters Way Estate, Cheltenham; Sunderland CB, Alderman Jack Cohen Health Centre.

DR. BARNETT STROSS asked the Minister how many local authorities had applied during 1956 for permission to build health centres; what was the average estimated cost; and how many medical practitioner suites were to be made available.

MR. VAUGHAN-MORGAN: Four authorities applied for approval for schemes where building was ready to start. The average estimated building cost was £25,000 and a total of 15 medical practitioner suites was included. In the case of four other authorities, approval in principle was sought or consideration of proposals was continued during the year.

The Rent Bill

THE Government got their guillotine motion on the Rent Bill by a majority of 54 in the Commons on February 4, but in many ways it was a hollow victory. There seemed an obvious reluctance among Government supporters to show wholehearted applause for the decision to restrict the remaining stages of the Bill to a rigid time table, and more than one Conservative voice was raised in protest against the principle.

Yet, as MR HENRY BROOKE, the Minister of Housing and Local Government, said in winding up the debate, there had hardly been a fulfilment of the promised furious, bitter and relentless parliamentary battle on this subject. True, taunts and charges were tossed about the Chamber, but there was never much of a show of angry passion to match the indignation which is felt outside the House. The only noisy episode came towards the end when Mr. Brooke made some comments about absent Labour members.

Under the time table proposed by the business sub-committee, and accepted by the Standing Committee considering the Bill, five sittings have been allocated to the Scottish provisions and four to the highly controversial clause 9.

MR. BUTLER, Home Secretary and Lord Privy Seal, in presenting the motion to the House, expressed his regret at having to take that action, but explained that the Government had to ensure reasonable despatch for the Bill. They moved the motion because after examining all the details of progress on the Bill in committee they found there was no alternative. The principle of the measure had been agreed by the House and it was the duty of the Government to see that the remaining stages were dealt with rapidly. Tenants and landlords were entitled to know where they stood, and there was a tendency for more housing accommodation to remain unused the longer the Bill was delayed. There was a tendency for human nature to hold property vacant to secure lettings free from control.

MR. MITCHISON moved the rejection of the Bill. He contended that a measure which on the one hand doubled the rents of five or six million people and on the other hand enabled landlords to evict tenants after six months was the Government's one contribution to the housing situation which in London and the large towns was already critical. Everyone knew that in those large towns it was impossible for those who had a moral and social claim to have a decent house of their own to get anything of the sort.

MR. TOM FRASER complained that this was the first time Scottish legislation had been guillotined, and that the Scottish provisions should have been discussed by the Scottish Grand Committee as there were matters of considerable difference in principle. He said that in Scotland they were not within years of being able to meet the demand for houses.

The House spent a few lively minutes when MR. BROOKE wound up the proceedings.

Local Authority Housing

TWO Ministers, Mr. Henry Brooke, Minister of Housing and Local Government, and Mr. J. S. Maclay, the Secretary of State for Scotland, were questioned in the House of Commons on February 5 about the number of local authorities who were not now building houses because of the withdrawal of subsidies and higher interest charges.

MR. RANDALL asked the Minister of Housing and Local Government, if he was able to publish figures of local housing authorities who had informed him of the cessation of their house-building programmes, in view of the withdrawal of subsidies and higher interest charges.

MR. BROOKE, in a written reply, stated.—The information for which the 1,468 local authorities have been asked is the number of tenders they propose to let in the current financial year; 202 have submitted a 'nil' return, but this does not necessarily mean that they have stopped building or will in fact do so. Some of them are known to have let new tenders since making the return. Most authorities are still building, and many—though I do not know how many—will let new tenders after the end of March. Various factors may cause local authorities to suspend or modify their house-building programmes: as a rule, they do not give reasons for what they propose.

Position in Scotland

MR. HAMILTON asked the Secretary of State how many local authorities were not building houses at the latest date for which information was available; and what were the reasons for this cessation of new construction.

MR. NIXON BROWNE, Under Secretary, Scottish Office.—At December 31 there were 79 local authorities with no houses under construction, but 12 of them were due to start additional houses under approved tenders. The authorities concerned are rural counties or small burghs, and it is probable that most of them have gone a long way towards meeting current needs.

MR. HAMILTON asked if the Under Secretary meant that one in three local authorities in Scotland which had no houses under construction had not got them under construction because supply was equated with demand.

MR. BROWNE said that the proportion covered by this number of local authorities was approximately four per cent. of the population of Scotland.

MR. ROSS asked the Secretary of State to state the number of houses for which local authorities had sought approval of tenders since July 31, 1956; and for the figures for the same period in the two previous years.

MR. BROWNE: The number of houses in tenders approved during the six months ended January 31, 1957, was 10,433, compared with 12,777 and 15,026 during the corresponding periods ended January 31, 1956 and 1955, respectively.

MR. ROSS said that it was evident, with

the figures available, that there was a continuous fall in the house building programme in Scotland. There was great danger of unemployment in the building industry in Scotland at a time when there was dire need of more and more houses.

MR. BROWNE said that Mr. Ross was drawing wrong conclusions from the figures, which had been showing a steady decline since the peak year of 1953. The reason for that decline was that the smaller local authorities were approaching the end of their programmes.

He added that they were all glad to see Scotland overtaking at least part of her great housing problem.

MR. WILLIS asked the Secretary of State for a statement on the extent of the overspill problem in Scotland.

MR. BROWNE: The major Scottish problem arises in Glasgow, where it is estimated that at least 300,000 persons will ultimately have to be rehoused outside the city boundary. Problems on a very much smaller scale may arise in one or two other towns, but this has not yet been fully established.

Manchester's Housing Problem

IN the Commons on February 5 MR. WILLIAM GRIFFITHS referred to the serious shortage of land available to Manchester Corporation which was interfering with the progress of the city's housing programme. He said that on the basis of the medical officer's estimate that there were 62,000 unfit houses in the city, he calculated that nearly one quarter of the population was housed in deplorable circumstances.

Bearing in mind post-war difficulties the city's housing record had been fair, and by 1953 the level was 2,630 a year. It was expected that that figure would increase to 3,000 in 1957 if sites were available, but there had been a drop, because of a lack of sites, to 1,934 in 1955 and to 1,368 last year. It was estimated that this year it would be about 1,680. In 1953 the medical officer had estimated a need to provide further accommodation amounting to 88,700. Since that estimate was prepared the corporation had completed 6,000 dwellings.

On the basis that sites would be available for building 3,000 houses a year the corporation planned to build between 1955 and 1960 about 17,000 dwellings and between 1961 and 1971 about 31,500. That meant in 1971 20,000 houses which were already unfit to-day would be in a worse state.

The Minister should state that he was prepared to agree to Manchester being given the opportunity to exploit a site outside the city which would be of sufficient size to meet the problem. If he would not agree to their having some land at Lymm or Mobberley he should say what message he should send to the sorely tried and frustrated city councillors of Manchester.

LIEUT.-COL. BROMLEY-DAVENPORT said that Manchester wanted to grab good agricultural land at Lymm away from Cheshire, because it presented little difficulty in clearance, was reasonably level, was well drained and well sited. Not one acre of agricultural land should be destroyed for building purposes. Where land was so available they should try to adopt a policy of building upwards instead of sprawling on outwards and destroying valuable agricultural land.

MR. BEVINS, Parliamentary Secretary, Ministry of Housing and Local Government, said that in 1953 Manchester had applied for permission to develop what was virtually a new town but it had been turned down by Mr. Harold Macmillan, when he was at the Ministry. It was done primarily on the ground that it was wrong to allow fertile land to be built on until all the various other choices had been examined. He had not time to mention all the other schemes which Manchester had been investigating but some progress had been made at Middleton and Heywood.

At Middleton work was progressing on the construction of 3,000 houses and at Heywood it was expected that work would start soon. At Hyde sites were well assured for about 4,000 houses in the near future. At other places such as Whitefield and Macclesfield there had been co-operation between the county councils and the city corporation, but local authority objections had frustrated these schemes.

Mr. Duncan Sandys, when he was Minister, had devoted a lot of time to this question and had discussed it with officials of the corporation. He had promised a decision, but had been moved to another department before that decision could be given. The new Minister was seized of the difficulty and had been giving it his attention. He was to meet a deputation from the city in about a fortnight and would discuss with them the implication of this and other proposals affecting overspill.

The Rating and Valuation Bill

FACED with the revolt among some of his own supporters over the consequences of the Rent Bill, MR. BROOKE found little solace from the back benches when the Commons came to consider the Rating and Valuation Bill on second reading on February 7. There was scarcely a good word said for this measure which reduces by one-fifth the assessments of shops, offices and certain miscellaneous properties.

The main issue was the demand for the rerating of industry, a question which MR. BEVINS, Parliamentary Secretary to the Ministry, indicated would be dealt with in the much promised statement by the Minister on local government reform. Conservative members were not inclined to accept that contention. One, MR. FREDERIC HARRIS, felt there was no justification for industrial derating in present circumstances, and that the allowance of 75 per cent. to business houses was 'fatuous.'

He was particularly strong in his strictures, adding that if rerating and the other proposal had been simultaneous all the annoyance which would be blamed on the Bill could have been avoided. 'I sometimes feel,' he went on, 'that governments do not take into account all the additional problems that they create for their MPs and supporters when so easily by a little thought they could save a lot of trouble.'

Another Conservative, MR. ALBERT COOPER, stigmatised the Bill as 'thoroughly bad.' It was not good enough to postpone the reform of local government finance, he said, and the Bill would never have been necessary if they had had proposals for that before them. Without satisfactory answers to some of their questions several members might abstain from voting.

Labour members claimed that the Bill moved away from uniformity in rating. They regretted the absence of provision for compensating local authorities for loss of revenue, arguing that rerating of industry would more than carry the charge which would be imposed on domestic ratepayers and on the rates generally by the operation of the measure.

MR. BEVINS said that it would be difficult to make a precise estimate of what rate poundages were likely to be two months in advance, but the effect of the provisions which reduced the rateable value of shops, offices and some other premises would be that the total rateable value throughout the country would fall by about 7 per cent. That was an average figure.

Most of those who took part in the debate indicated to the Minister by how much it was expected the rate poundage in their locality was expected to be increased to compensate the local authority for the loss of revenue.

MR. BROOKE, in his concluding speech, did not claim that the Bill provided a solution for the difficulties of local government finance, and suggested that there had been an undercurrent of insinuation that the Government wished to use the Bill as an excuse for putting off indefinitely the real task that lay ahead. The review of local government finance had been completed, and he would be ready to make a general statement on the subject early next week. Afterwards, they would discuss in detail with the local authorities many of the major problems which would have to be faced.

The Bill was read a second time by 206 votes to 165.

OTHER BUSINESS

Office Building

MRS. LENA JEGER asked the Minister of Housing and Local Government, on February 5, how many square feet of new office building had been constructed since the war in Holborn and St. Pancras, respectively; and for how many planning permission had been granted.

MR. BROOKE: Up to January, 1956, the last date for which this information is at present available, planning permissions had been given for 3,650,000 sq. ft. of new office building in Holborn and 1,451,000 sq. ft. in St. Pancras. Approximately 2,290,000 sq. ft. have been constructed in Holborn and 850,000 sq. ft. in St. Pancras.

Forth Road Bridge

MR. HAMILTON asked the Secretary of State for Scotland whether, in view of the continued upward trend of prices, he would give an assurance that rigid financial considerations about the total cost would not adversely affect the commencement of work on the Forth road bridge on the date recently specified.

MR. NIALL MACPHERSON, Under Secretary, Scottish Office, replying on February 5, said: The Forth road bridge joint board now have authority to take tenders as soon as they can. The acceptance of tenders will require the Secretary of State's approval in the normal way, but subject to this the date on which the work will start will be determined by the speed at which the joint board are able to complete the plans and take tenders.

He added, in reply to another question, that provided the tenders were competitive

he had no reason to suppose there would be any avoidable delay in starting.

MR. HAMILTON also asked whether in view of the relatively small cost of the initial preparatory work on the Forth road bridge, the Secretary of State would re-examine the possibility of further reducing the 18 months' delay which would occur between now and mid-1958.

MR. MACLAY in a written reply stated: The statement which I made last week, is based on an estimate of the time which will be required for completion of the plans by the joint board, advertisement and acceptance of the tenders and appearance of the successful contractor on the site. I have no doubt that the joint board will do everything in their power to minimise this period.

Proposed Tay Bridge

MR. GEORGE THOMSON asked the Secretary of State for Scotland, on February 5, to initiate discussions with the local authorities concerned about proposals for a road bridge over the Firth of Tay at Dundee.

MR. MACPHERSON: A road bridge over the Tay would be a classified road project and the initiative would lie with the highway authorities concerned. I understand that they are discussing the matter.

New Road Works

On February 6 MR. DANCE asked the Minister of Transport and Civil Aviation if he would make a statement on the possible date when work would start on the construction of that part of the Bristol-Birmingham motorway which would serve as a by-pass to the west of Bromsgrove.

MR. HAROLD WATKINSON said that he met a deputation from Worcestershire County Council about this matter on January 23 and undertook to consider, and let them know as soon as possible, when he could fit this scheme into his programme. When he was able to do this he would also write to Mr. Dance.

MR. IRVING also asked the Minister to state the lengths of new trunk-road construction completed in 1956, as distinct from road widening or modification; and what proportion of the total programme was carried out by using non-traditional methods of construction, for example, soil stabilisation.

MR. WATKINSON.—Nine sections of new trunk road, involving a total length of 5.41 miles, were completed in the calendar year 1956. In two cases stabilised soil foundations were used, for a total length of 1.36 miles.

MR. IRVING asked the Minister when he expected that excavation work on the Dartford-Purfleet tunnel would commence.

MR. WATKINSON.—Next month.

Bridging the Humber

MAJOR WALL asked the Minister of Transport and Civil Aviation, on February 6, whether he would assign a priority in the Government's road-building programme to the construction of a bridge over the River Humber.

MR. WATKINSON.—I regret I can offer no hope of including a new Humber Bridge in the Government's road programme in the foreseeable future. The City of Hull, on behalf of the other local authorities concerned, has been informed of my reasons.

MR. PEYTON asked the Minister of Transport and Civil Aviation, on February 6, what consideration he had given to the provision of adequate helicopter facilities in London and other centres.

MR. WATKINSON said a number of possible sites in the London area had been investigated by his department, but a decision could not be taken until more was known about the operating characteristics of twin-engined transport helicopters now under development, and the extent of the demand.

Outside London the provision of air stations would be primarily the concern of local authorities, but the Department would continue to supply technical data as it became available.

Farm Building Research

MR. FREDERICK WILLEY asked the Minister of Agriculture, Fisheries and Food, representing the Lord President of the Council, what action he was taking to promote research into the design and reconstruction of farm buildings.

MR. HEATHCOAT AMORY, in a written reply on February 7, stated: The Agricultural Research Council are giving this matter close attention. In consultation with my own department and the Department of Agriculture for Scotland, they are setting up a committee, consisting mainly of persons with technical qualifications, to co-ordinate the work already in progress at various research centres and to recommend further new lines of investigation. It is hoped that this committee will hold its first meeting early next month.

Building Standards Report, Liverpool

MR. NORMAN PANNELL asked the Minister of Housing and Local Government if he had yet considered the report presented by the Liverpool City Architect and Director of Housing, and of the City Building Surveyor, to the Liverpool Housing Committee on January 17, 1957, on the standard of construction on the corporation housing estates; and, in view of the admission contained in it of bad workmanship on current contracts, what action he proposed to take to protect the public interest in relation to such contracts, which had been the subject of Exchequer grants on the authority of his department.

He also asked if the Minister would, in view of the anxiety caused by the report, order an inquiry into the allegations of bad workmanship in the construction of corporation dwellings under the authority of his department.

MR. BROOKE, in a written reply on January 7, stated that he had read the reports which had been sent to him. The matters raised appeared to be entirely the business of the Liverpool Corporation.

Welsh Water Resources

As a preliminary to setting up an advisory committee to advise the Minister of Housing and Local Government on matters connected with the conservation and use of water in Wales, engineers of the department are to begin an immediate technical appraisal of the water resources of Wales. This was announced by MR. HENRY BROOKE, in a written reply on February 7, and the decision follows recommendations by the Rural Development Panel of the Council for Wales and Monmouthshire.

'PLENITUDE OF OVERHEAD WIRES'

London Boroughs Seek New Powers of Control

From a Correspondent

A GENERAL power to permit wires to go underground is being sought by London borough councils following complaints about the 'ever-increasing number' of overhead wires crossing the highways in the London district.

The proposal, which has been made by the Association of Metropolitan Town Clerks, is being put to London County Council by the representative committee of the 29 London borough councils.

It is being proposed that the LCC should insert an appropriate clause in its next General Powers Bill.

Reporting on this, the Standing Joint Committee of the councils says that in London the legal provisions for the control and regulation of overhead wires or similar apparatus are contained in the London Overground Wires Act, 1933, and by-laws made by the London County Council.

Lambeth Borough Council, which first made the complaint, consider that the present 'plenitude of overhead wires' was not envisaged at the time of the passing of the Act and that local authorities should be given a greater measure of control.

A spokesman for the committee stated: 'The town clerks felt that the proposals made by Lambeth were unsuitable for legislation but suggested that the need existed for a general power enabling borough councils to permit wires to go underground.'

ECONOMY IN HOUSING LAYOUT

Chesterfield RDC's Experiment

A NEW style of housing layout in which one-bedroom flats and three-bedroom houses are built in conjunction with each other on corner sites, is to be tried out by Chesterfield RDC, writes a correspondent. The first of these corner blocks will be on the White House Farm estate at Tupton and the Queen-street redevelopment area at Pilsley.

Built in an L-shape to make the best use of road frontage on a corner site, the one-bedroom flats will comprise the angle of the 'L.' There will be two flats on the ground floor and two on the upper floor. The 'legs' of the 'L' will consist of three-bedroom type houses in terraces or pairs according to the size and layout of the site. The flats will be without a back garden, but there will be a communal drying space at the rear. The absence of back gardens makes the ground floor flats suitable for use as aged persons' dwellings.

Each flat has a living-room, kitchen, bathroom, and one double bedroom. Access will be from a covered area on the ground floor, with a stairway to a balcony serving the first-floor flats. These upper-storey dwellings would be suitable for childless couples, or possibly single persons. The Engineer, MR. J. B. WIKELEY, said that by building flats into the corner sites, a more attractive and more economical layout could be achieved.

The Builder

CURRENT PRICES OF MATERIALS

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AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

	£	s.	d.
Pit Ballast ... ... per yd.	1	7	0
Pit Sand ... ... ,,	1	4	5
Washed Sand ... ... ,,	1	7	7
¾ in. Shingle ... ... ,,	1	3	11
¼ in. Broken Brick ... ... ,,	1	0	6
Pan Breeze ... ... ,,		10	9
Fine or Coarse Foamed Slag Aggregate ... ... per ton	3	5	0

2 yds. of fine and 2.6 yds. of coarse per ton.

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

Best British Portland Cement. Standard Specification delivered Charing Cross area.			
6-ton loads and upwards, site ... ... per ton	5	4	6
1 to 6 tons, site ... ... ,,	5	16	6
Rapid Hardening Cement in 6-ton loads and upwards to site ... ... ,,	5	15	0
1 to 6 tons do. site ... ... ,,	6	7	0
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.			
Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices.			
Red, Buff or Khaki Colorcrete in 6-ton lots ... ,,	8	1	0
Other colours according to colour.			
In 4-ton lots from 298s. 0d. to 688s. 0d. per ton.			
White Portland Cement ... ... ,,	13	5	0
Under 1 ton ... ... per cwt.		15	10
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards ... ... per ton	6	17	0
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.			
Cullamix Tyrolean Finish, £11 8s. 0d. to £14 3s. 0d. (1-ton loads and upwards).			
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up ... ... ,,	14	15	9
Stourbridge Fireclay, 6-ton loads at Railway Depot, London ... ... ,,	6	17	6
Moler Mortar Powder for Flue Bricks (London sites) ... ... per cwt.	1	10	0

BRICKS

Full Loads.			
First Hard Stocks ... ... per 1,000	12	17	0
Second Hard Stocks ... ... ,,	11	16	0
Mild Stocks (Kiln Burnt) ... ... ,,	9	1	6
Mild Stocks ... ... ,,	8	16	6
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.			
2½ in. Nominal Fletton Bricks to sites in W.C.			
District Commons ... ... ,,	5	15	0
Cellular do. ... ... ,,	5	15	0
Keyed do. ... ... ,,	5	17	0
Rustics ... ... ,,	7	5	0
Cellular Rustics ... ... ,,	7	5	0
Single Bullnose Commons ... ... ,,	7	5	0
Sandfaced ... ... ,,	8	2	6
Tuscans ... ... ,,	8	17	6
Saxons ... ... ,,	9	5	6
Golden Buffs ... ... ,,	9	12	6
Dapple Light ... ... ,,	10	7	6
Best Blue Pressed Staffs (London Stations) ... ,,	28	15	6
,, Bullnose (London Stations) ... ... ,,	29	9	6
Blue Wire Cuts (London Stations) ... ... ,,	25	19	0
Midhurst Lime Bricks (London sites) ... ... ,,	10	8	0
Uxbridge Whites (London sites) ... ... ,,	9	17	0
Special Purpose Sandlime Bricks (London sites) ... ,,	7	18	6
2½ in. Best Stourbridge Fire Bricks (London Stations) ... ... ,,	27	16	3
3 in. do. (London Stations) ... ... ,,	33	8	0
2½ in. Moler Flue Bricks (London sites) ... ... ,,	36	0	0
2½ in. Machine-made Sandfaced Red Facings (London sites) ... ... ,,	15	8	6
2½ in. Machine-made Multi Red Facings (London sites) ... ... ,,	15	13	6
2½ in. Hand-made Sandfaced Red Facings (London sites) ... ... ,,	15	13	6
2½ in. Hand-made Sandfaced Multi-Colour Facings (London sites) ... ... per 1,000	16	8	6
Hand-made Sandfaced Cherry Red Facings. Berkshire district (London sites) ... ... ,,	18	19	0
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London sites) ... ... ,,	18	19	0
Rubber Bricks for gauged arches (London sites) ... ,,	42	17	6
2½ in. Surrey Clamp Burnt Multi Stock Facings (London sites) ... ... ,,	13	16	6
2½ in. Surrey Kiln Burnt Multi Stock Facings (London sites) ... ... ,,	15	6	0
Glazed Bricks (London sites), White, Ivory, Brown—			
Stretchers ... ... ,,	64	0	0
Headers ... ... ,,	63	0	0
Quoins, Bullnose and 4½ in. Flats ... ... ,,	80	0	0
Double Stretchers ... ... ,,	85	0	0
Double Headers ... ... ,,	77	10	0
One side and two ends ... ... ,,	87	0	0
Two sides and one end ... ... ,,	89	10	0
Splays and Squints ... ... ,,	83	0	0

Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 25% for Best quality and plus 25% less 10% for Second quality.

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District.)

Hollow Clay Partition Blocks (Keyed)					
	Minimum lorry loads				
*2 in.	140 yds.	... ...	per yd. sup.	4	5
*2½ in.	140 yds.	... ...	,,	4	8
*3 in. (3 cavity) ...	120 yds.	... ...	,,	5	5
Building Blocks (Keyed)					
*3 in. (6 cavity) ...	110 yds.	... ...	,,	5	7
*4 in. (6 cavity) ...	95 yds.	... ...	,,	6	10
6 in. (8¾ in. × 5⅝ in.)	1,250 blocks	... ...	per 1,000	26	18	0
* Half blocks at no extra charge.					
Clinker Concrete					
2 in.	100 yds.	... ...	per yd. sup.	3	9
2½ in.	85 yds.	... ...	,,	4	4
3 in.	75 yds.	... ...	,,	5	3
4 in.	55 yds.	... ...	,,	6	5
Cranham					
2 in, ...	... ...	... ...	,,	6	9
2½ in.	... ...	... ...	,,	7	5
3 in.	... ...	... ...	,,	8	9
4 in.	... ...	... ...	,,	10	9
4½ in. Load bearing quality ...	... ...	... ...	,,	11	10
Moler Partition Blocks					
2 in.	150 yds.	... ...	,,	16	3
2½ in.	120 yds.	... ...	,,	16	6
3 in.	100 yds.	... ...	,,	16	10
4 in.	90 yds.	... ...	,,	20	0
Lightweight Concrete Building and Partition Blocks of Various Sources of Manufacture					
2 in.	100 yds.	... ...	,,	5	10
2½ in.	80 yds.	... ...	,,	7	0
3 in.	65 yds.	... ...	,,	8	2
4 in.	50 yds.	... ...	,,	9	8
4½ in.	44 yds.	... ...	,,	10	4
6 in.	33 yds.	... ...	,,	13	10½
Thermalite-Ytong Partition Blocks					
2½ in.	144 yds.	... ...	,,	7	1
Thermalite-Ytong Loadbearing Insulating Blocks					
3 in.	120 yds.	... ...	,,	8	6
4 in.	90 yds.	... ...	,,	11	1
5 in.	72 yds.	... ...	,,	13	10
6 in.	60 yds.	... ...	,,	16	7
8½ in.	42 yds.	... ...	,,	1	3	9
Floor Blocks and Filler Tiles					
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads			per 1,000	34	1	0
4 in. do.			,,	36	10	0
5 in. do.			,,	43	15	0
6 in. do.			,,	49	19	0
7 in. do.			,,	61	8	0
8 in. do.			,,	71	19	0
12″ × 3″ × ⅝″ Filler Tiles in multiples of 10 tiles			per 1,000 multiples	42	15	0
12″ × 4″ × ¼″ do.	do.			73	15	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Revised Standard List (Nov., 1956) prices delivered London Area.

Delivered ex Merchants Wharf or Depot or Manufacturers Works.

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
Best Quality ...	−7½%	+8¾%	+15%
BSS Best do. ...	+10% −7½%	+10% +8¾%	+10% +15%
Tested Quality	+37½% −7½%	+37½% +8¾%	+37½% +15%
BSS Tested do.	+47½% −7½%	+47½% +8¾%	+47½% +15%

STONEWARE DRAIN PIPES, etc.—*continued*

	£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths) ... per 1,000	11	5	6
4 in. do. ... ... ,,	14	16	6
6 in. do. ... ... ,,	30	14	0
9 in. do. ... ... ,,	58	9	0

DAMP COURSE

Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area ... ... per yd. sup.		3	9
Asbestos base ditto 7 lb. per yd. sup. do. do. ,,		5	6
Lead lined bitumen ditto 9½ lb. per yd. sup. do. ,,		12	6
18 in. × 9 in. British damp course slates ... ... per 1,000	41	12	8
14 in. × 9 in. do. do. ... ... ,,	32	0	0
9 in. × 9 in. do. do. ... ... ,,	18	2	6
18 in. × 4½ in. do. do. ... ... ,,	19	2	6
14 in. × 4½ in. do. do. ... ... ,,	15	4	9
9 in. × 4½ in. do. do. ... ... ,,	10	5	3

STONE

Bath Stone—			
Monks Park ... ... per ft. cube		8	1½
St. Aldhelm Box Ground ... ... ,,		9	1½
Delivered in railway trucks at South Lambeth B.R. Western Region.			
Doulting Stone Random Blocks. Delivered London area ,,		8	11
Beer Stone. Delivered London area ... ... ,,		8	5
Portland Stone—			
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region ... ... ,,		8	5
Yorkshire Stone—Blue Robin Hood Quality.			
Delivered to site London in 6-ton lots.			
9 in. × 3 in. Rubbed, weathered, throated and stooled cills ... ... per ft. cube	3	17	9
12 in. × 6 in. do. do. ... ... ,,	2	15	6
12 in. × 3 in. Plain coping, twice throated ... ,,	2	3	0
12 in. × 3 in. Weathered and twice throated coping ,,	2	17	3
14 in. × 6 in. do. do. ... ... ,,	2	11	9
4½ in. × 9 in. Plinth, rubbed on top and face ... ,,	2	6	3
3 in. sawn two sides Slabs, random sizes ... ... per ft. sup.		8	3
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ... per ft. cube	1	8	3
Do. do. fair one edge for fair faced brickwork ... ... ,,	1	13	6
Hard York—			
12 in. × 2 in. Square Steps, rubbed on top and edge per ft. run		10	0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front ... ... per ft. cube	2	12	9
12 in. × 6 in. Plain Steps, rubbed top and front ,,	2	6	3
2 in. Rubbed and Jointed Paving, given sizes ... per ft. sup.		9	4
2 in. Sawn Paving, edges squared, in random sizes per yd. sup.	3	5	3

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000			
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	29	19	0
Hand-made Pantiles Berkshire district	55	18	0
Hand-made Double Roman Bridgwater district	59	5	0
Hand-made 10½ × 6½ tiles Berkshire district	15	9	0
Machine-made 10½ × 6½ Staffordshire district	14	1	9
Hand-made Hip and Valley tiles per doz.	1	11	3
Machine-made Hip and Valley tiles do.	1	8	0
Concrete tiles 10½ × 6½	8	5	6
do. Interlocking (49S)	19	9	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.			
24 × 12	137	2	4
22 × 12	111	8	0
22 × 11	100	14	1
20 × 12	94	9	10
20 × 10	90	8	6
18 × 10	62	17	0
18 × 9	55	1	6
16 × 10	49	10	0
16 × 8	38	15	3

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

Softwood—			
Joinery quality ... ... Ex Wharf per standard	£115 to £140		
Carcassing quality ... ... do. ,,	£97 to £102		
1 in. Tongued and Grooved Flooring do. ,,	£110	0	0
Hardwood—			
Mahogany—African S.E. do. per ft. cube	1	10	0
do. Honduras do. do. ,,	3	5	0
Oak European do. do. ,,	2	5	0
do. Japanese do. do. ,,	2	10	0
do. English Logs sawn do. ,,	1	17	6
Teak 8 in. average S.E. do. ,,	3	17	6
Walnut African Logs sawn do. ,,	1	5	0

DOORS (in Lots 1-11)

Delivered London area.	£	s.	d.
1¼ in. 4 Horizontal Panel. Pattern 4 in. deal			
2 ft. 0 in. × 6 ft. 6 in. ... ... each	1	12	0
2 ft. 3 in. × 6 ft. 6 in. ... ... ,,	1	13	0
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	1	14	0
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	1	16	6
2 in. do. but top panel open. Pattern 4 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	2	9	0
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	11	6
2 in. 2 Panel, top panel open. Pattern 2 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	2	1	9
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	3	6

SUNDRIES

Delivered London area.			
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton) ... ... per yd.		5	8
1½ in. do. (67 yds. to 1 ton) ... ... ,,		7	4
2 in. do. (52 yds. to 1 ton) ... ... ,,		8	11½
2½ in. do. (45 yds. to 1 ton) ... ... ,,		10	3
3 in. do. (39 yds. to 1 ton) ... ... ,,		11	5½
Quantities under 1 ton add 1d. per ½ in. of thickness.			
½ in. imported insulation Board, quantities over 5,000 sq. ft. per 100 sq. ft.	2	2	6
¼ in. Hardboard do. ... ... ,,	2	1	6
5/16 in. do. do. ... ... ,,	3	2	6
7/16 in. Asbestos Flat Building Sheets ... ... per yd. sup.		3	8
¼ in. do. ... ... ,,		4	10
Roofing Felt, 1-ply ... ... ,,		1	9
do. 2-ply ... ... ,,		2	2½
Best Scotch Glue in slabs ... ... per ½ cwt.	5	0	0
do. pearl ... ... ,,	5	5	0
Croid Glue ... ... 28 lb.	2	6	0
Cut Nails 3 in. (1-ton lots) ... ... per ton	70	10	0
do. 4 in. and up (1-ton lots) ... ... ,,	67	0	0
Wire Nails, 3 in. (4-cwt. lots) ... ... per cwt.	3	6	10
do. 4 in. and up (4-cwt. lots) ... ... ,,	3	6	3

METALS

STEEL JOISTS, ETC.

Basis Joists—			
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in., 12 in. × 6 in. plain cut to lengths delivered London area ... ... per ton	48	2	6
Extra for sizes			
3 in. × 1½ in. 4 in. × 1¾ in. ... ... ,,	3	10	0
3 in. × 3 in. ... ... ,,	2	10	0
4 in. × 3 in. ... ... ,,	2	5	0
10 in. × 4½ in. ... ... ,,	1	10	0
5 in. × 2½ in. 5 in. × 3 in. ... ... ,,	1	15	0
4¾ in. × 1½ in. ... ... ,,	3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in. ,,		15	0
6 in. × 3 in. 24 in. × 7½ in. ... ... ,,	2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in. } ,,	1	5	0
9 in. × 4 in. 10 in. × 5 in. ... ... }			
12 in. × 5 in. 22 in. × 7 in. ... ... ,,	1	0	0
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in.]			
14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in.]			
15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. } ,,		10	0
16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in.]			
18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in.]			
Steel angles average price ... ... ,,	50	5	0
Steel tees average price ... ... ,,	51	5	0
Fabricated work delivered London—			
R.S. Joists cut and fitted ... ... ,,	65	12	6
Compound girders ... ... ,,	71	15	0
Stanchions ... ... ,,	77	2	6
Compound stanchions ... ... ,,	81	10	0
In Roof Work—Trusses and Purlins ... ... ,,	94	15	0
Average prices not for awkward work.			
Angle cleats and ⅝ in., ¾ in. and ⅞ in. bolts average price London area ... ... per cwt.	5	7	6

FERRO-CONCRETE BARS

Mild Steel Ferro-Concrete bars British manufacture to BSS785 ex London Stock ⅝ in. diam., and upwards ... ... per ton	46	5	0
¼ in. diam. ... ... ,, extra	8	12	0
5/16 in. do. ... ... ,,	6	12	0
⅜ in. do. ... ... ,,	4	12	0
½ in. do. ... ... ,,	3	2	0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts :

Galvanised Tube—	Under 1 ton	Over 1 ton	W.I. Fittings	Malleable Fittings
Class A	+ 14½%	+ 9¼%	Light + 36%	Malleable List
Class B	+ 26 %	+ 21 %	Heavy + 43½%	−25% +40%
Class C	+ 44¾%	+ 39¾%		
Black—				
Class A	− 8½%	− 13½%	Light + 22¾%	Malleable List
Class B	+ 4½%	− 3%	Heavy + 30¼%	− 25%
Class C	+ 19¼%	+ 14¼%		

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/10½	3/5	1/–
3½ in.	4/2½	3/9	1/–
4 in.	5/5½	4/3	1/6
4½ in.	5/11½	4/9	1/9
5 in.	6/8	5/1	2/1

METALS—*continued*

C.I.O.G. Gutters

	Gutters	Nozzle	Stop Ends
3 in.	5/-	4/6	1/2
3½ in.	5/7	4/6	1/6
4 in.	6/2	4/9	1/9
4½ in.	6/8	5/5	2/1
5 in.	7/3½	6/2	2/4

C.I. Rain-water Pipes

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	8/3½	4/3	6/1
2½ in.	8/3½	4/9	8/2
3 in.	9/3½	5/11	8/10
3½ in.	10/7	7/-	10/7
4 in.	12/3	8/5	12/7

L.C.C. Coated Soil Pipes

2 in	9/5	7/3	8/10
2½ in.	9/9½	8/-	11/-
3 in.	11/1½	8/10	13/-
3½ in.	12/5½	11/-	15/2
4 in.	14/2	12/3	17/11

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 17½% and tonnage allowance. 4-ton lots 5 per cent., 2-ton lots 2½ per cent.

L.C.C. Coated Drain Pipes

In 9-fts.	cwt. qt. lb.	per yd.	Bends	Branches
4 in.	1 1 17	33/6	23/-	41/-
6 in.	2 0 1	49/2	61/3	98/-

Asbestos Rain-water Pipes and Fittings

All less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths	per yd.	4/3	4/6½	5/6	7/3½
Shoes	each	2/9	3/-	3/7	4/10
Single Branches	,,	4/4	5/1	6/1	8/6
Bends square or obtuse	,,	3/-	3/4	4/4	6/1
Swan Necks 4½ in. proj.	,,	3/4	4/4	4/10	6/9
,, 6 in. ,,	,,	3/7	4/4	5/5	7/3

Asbestos O.G. Gutters and Fittings

		4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths	per yd.	4/1	4/5½	5/4	6/4½
Drop ends	each	3/3	3/9	4/5	5/2
Stop ends	,,	1/-	1/1	1/2	1/4
Angles	,,	3/4	3/10	4/8	5/5
Nozzles	,,	3/3	3/9	4/5	5/2
Union Clips	,,	1/7	1/11	2/4	2/8

Asbestos Half-Round Gutters and Fittings

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths	per yd.	2/10	3/4½	3/5½	4/1	5/8
Drop ends	each	2/4	2/9	3/-	3/4	4/10
Stop ends	,,	-/11	1/-	1/1	1/2	1/4
Angles	,,	2/8	3/-	3/4	3/7	4/10
Nozzles	,,	2/4	2/9	3/-	3/4	4/10
Union Clips	,,	1/2	1/3	1/4	1/6	2/3

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	49 7 6
Mild Steel Bars	43 18 0
Mild Steel Hoops	44 2 6

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	58 2 6
24 gauge	60 12 6
26 gauge	63 12 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	66 17 0
24 gauge	70 7 0
26 gauge	75 12 0
Galvanised flat sheets C.R. and C.A.—	
20 gauge	68 7 0
24 gauge	71 17 0
26 gauge	77 2 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base prices)		£ s. d.
Sheet BS 1470 SIC 18 SWG (36 in. wide)	per lb.	2 10½
Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide)	,,	2 8
Coiled strip BS 1470 S1C 18 SWG (24 in. wide)	,,	2 9½
Coiled strip BS 1470 NS 3 Utility 18 SWG (24 in. wide)	,,	2 7½
Coiled strip for flashing 99.7% purity 22 SWG (12 in. wide)	,,	3 0
Corrugated sheet BS 1470 NS 3 Utility Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1 12 0
Corrugated sheet BS 1470 NS 3 Utility Industrial Profile 8 ft. × 31½ in. × 20 SWG	,,	1 17 11
Corrugated sheet BS 1470 NS 3 Utility Mansard Profile 8 ft. × 31½ in. × 20 SWG	,,	1 11 2
Extruded section BS 1476 E1C simple moulding	per lb.	2 8½
Extruded section BS 1476 E1C 1 in. diam. round	,,	2 6
Extruded section BS 1476 HE1WP simple angle	,,	2 11½
Extruded section BS 1476 HE10WP 1 in. diam. round	,,	2 10½
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG	,,	4 3½
Tubing BS 1471 HT10WP 1½ in. O/D × SWG	,,	5 6½

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

M.O.H. All per doz.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	87/-	128/8				
Toilet bib cocks for iron	109/-	158/5				
Screwdown stop cocks for iron	66/-	95/9	188/-	363/-	522/6	917/6
do. with two unions for lead	89/-	132/-	234/4	472/-	623/6	1389/6
Double nut boiler screws	18/8	26/5	47/6	48/6	67/-	93/6
Heavy Croydon ball valves	77/-	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/-
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/-	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5
	1½ × 6 lb.	1½ × 6 lb.	2 × 7 lb.	3 × 7 lb.		
Lead P. trap with brass cleaning screws	72/-	90/-	144/-	246/-		
Lead S. trap do.	87/-	108/-	177/-	318/-		

Solder		s. d.
Plumbers'	1 cwt. lots 351/-	14 lb. lots per lb. 3 6
Tinmen's	,, ,, 427/-	,, ,, 4 1
Blow pipe	,, ,, 430/-	,, ,, 4 3

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 28½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.		d.		d.
⅛ in. × 19 gauge	14	Total per lb.	42⅜	approx per ft.	11½
¼ in. × 19 ,,	12⅜	,, ,,	41	,, ,,	16
1 in. × 18 ,,	10⅞	,, ,,	39½	,, ,,	24½
1¼ in. × 18 ,,	10½	,, ,,	38⅞	,, ,,	29½
1½ in. × 18 ,,	10¼	,, ,,	38⅝	,, ,,	35½
2 in. × 17 ,,	11⅞	,, ,,	40½	,, ,,	56⅝

Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	per ton	277	5 0

Zinc

Sheet Zinc	10 gauge (25 SWG)	5 cwt. lots upwards	per cwt.	8 9 0
do.	12 gauge (23 SWG)	,,	,,	8 6 6
do.	14 gauge (21 SWG)	,,	,,	8 5 3

Brass Tubes

Brass tubes basic price, plus gauge and manufacturing extras	per lb.	2	0½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	150 15 0
Lead Water Pipe in coils	,,	153 0 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia.	,,	154 10 0
,, over 4 in. dia.	,,	156 10 0
Lead Gas or Untinned Compo pipe	,,	154 10 0
Extras over Basis for quantities under 1 ton		
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	,,	4 0
1 cwt. do. 3 cwt.	,,	6 0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected £103 10s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site	per ton	8 2 3
do. White do. do.	,,	8 11 9
Sirapite Coarse do. do.	,,	8 4 3
do. Fine do. do.	,,	8 12 3
Blue Lias Lime in 6-ton loads	,,	6 14 6
Hydrated Lime (Grey) do.	,,	5 17 6
do. (White) do.	,,	6 5 0
Lump Lime (Grey) do.	,,	5 7 0
do. (White) do.	,,	5 14 6
White Keen's or Parian Cement in 1-ton loads	,,	11 11 9
Pink Keen's or Parian Cement in 1-ton loads	,,	11 6 6
Granite Chips in 6-ton loads	,,	2 10 6
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery. Delivered site	per yd.	2 4
1,200 yds.	,,	2 3½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site	,,	3 0
1,200 yds.	,,	2 11½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery. Delivered site	,,	2 7
1,200 yds.	,,	2 6½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site	,,	3 3
1,200 yds.	,,	3 2½

PAINT AND DISTEMPER

Delivered London area	£	s.	d.
Ceiling Distemper ... ... per cwt.	1	7	6
Washable Distemper ... ... „	5	5	0
Gloss Paint ... ... per gal.	2	12	0
Snowcem cement paint (in 1 cwt. drums) ... ... per cwt.	3	11	0
LEAD PRODUCTS AND OILS			
Ground White Lead, 1 cwt. kegs ... ... per cwt.	9	14	0
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins per gal.	3	9	6
Genuine Red Lead, Dry, 1 cwt. keg ... ... per cwt.	7	9	9
Genuine Linseed Oil Putty, 1 cwt. keg ... ... „	3	0	0
Size XD quality, 28 lb. ... ... per tin		9	0
Raw Linseed Oil (5 gal.) drums extra ... ... per gal.		17	3
Boiled Linseed Oil (5 gal.) do. ... ... „		17	9
SUNDRIES			
Turpentine substitute (5 gal.) drums extra ... ... „		6	6½
do. do. (40 gal.) do. do. ... „		5	10½
Solignum, Brown (5 gal. cans) Exterior ... ... „		8	4
Creosote (40 gal. barrels) ... ... „		2	0
Paste Powder (1 lb. packets) ... ... per lb.		2	0
White Lining Paper ... ... per piece		1	1

VARNISHES, etc.

Delivered London area			
Oak Varnish, Outside or Inside ... ... per gal.	1	18	0
Oak Pale Copal do. ... ... „	1	18	0
Hard Drying Oak for Inside ... ... „	2	1	0
Crystal Paper Varnish do. ... ... „	2	4	0
Eggshell Flat Varnish do. ... ... „	2	6	0
Finest Carriage Varnish ... ... „	2	5	0
Front Door Varnish ... ... „	2	1	0
Japan Gold Size ... ... „	1	14	0
Black Japan ... ... „	1	15	0
Brunswick Black ... ... „	1	10	0
Berlin Black ... ... „	1	7	6
Terebene ... ... „	1	13	0
Knotting (1 gal. bottles free)... ... ... „	2	7	0
French and Brush Polish (do.) ... ... „	2	0	0

GLASS

Delivered London area	per ft. super s.	d.
18 oz. Sheet Glass Ordinary Glazing Quality. Cut Sizes		6½
24 oz. „ „ „ „ „ „		8¼
26 oz. „ „ „ „ „ „		11
32 oz. „ „ „ „ „ „	1	2½
⅛ in. Rolled Plate		10⅞
⅛ in. and ¼ in. Rough Cast	1	2¼

	Per ft. super s.	d.
⅛ in. Figured Rolled and Cathedral, Standard patterns: White		10⅞
do. Standard Tints	1	8
do. Special Tints	3	4
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating	1	3⅛
¼ in. Wired Cast	1	5
¼ in. Georgian Wired Cast	1	5¼
Hollow Glass Blocks—	Each	
P.B.2. 5¾×5¾×3⅞ in.	2	11
P.B.3. 7¼×7¼×3⅞ in.	4	5
P.B.32. 7¼×7¼×3⅞ in.	4	5
Radiused Corner Blocks to match up with—		
P.B.2.	5	6
P.B.3.	7	0
P.B.32.	7	0
¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super	
In plates not exceeding 2 ft. sup.	3	10
„ „ „ 5ft. sup.	4	9
„ „ „ 45ft. sup.	5	7
„ „ „ 100ft. sup.	6	0
¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality —Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways	9	0
Not exceeding 180 ft. sup. or ditto	12	1
Not exceeding 200 ft. sup. or ditto	17	2
Plates exceeding 200 ft. sup. prices on application.		
Substances other than ¼ in. Polished Plate at Special Prices.		

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. sup. s.	d.
18 oz. sheet O.Q.	3,000		4⅞
24 oz. „ „	2,000		6½
26 oz. „ „	2,000		8⅛
32 oz. „ „	2,000		11½
⅛ in. Rolled Plate	1,000		8⅛
⅛ in. Figured Rolled and Cathedral Standard Patterns, White	1,000		8⅛
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte...	1,000		11⅞
⅛ in. and ¼ in. Rolled Plate or Rough Cast ...	2,000	1	0
¼ in. Wired Cast, Hexagonal...	2,000	1	2
¼ in. Georgian Wired Cast	2,000	1	2¼

The Builder

CURRENT RATES OF WAGES

AS FROM FEBRUARY 4, 1957. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1
Craftsmen	4/4½	4/4
Labourers	3/10	3/9½

Town.	*Grade.*
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A1
Accrington	A
Addlestone	A
Afan Valley	A
Aldeburgh	A1
Aldershot District	A1
Alfreton UD	A
Alnwick UD	A
Altrincham	A
Amble	A
Ambleside	A1
Amersham	A1
Ammanford	A
Andover	A1
Anglesey, Isle of	A1
Ardingly	A1
Arundel	A1
Ascot	A1
Ashbourne RD	A1
Ashbourne UD	A1
Ashby-de-la-Zouch UD	A
Ashby Woulds UD	A
Ashford (Kent)	A1
Ashford (Middlesex)	A
Ashington UD	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A1
Atherstone RD	A
Attleborough	A1
Axminster	A1
Aylesbury	A1
Aylsham	A1
Bagshot	A1
Bakewell UD	A1
Banbury	A1
Bangor	A1
Barnard Castle UD	A
Barnoldswick UD	A
Barnsley CB	A
Barnstaple	A1
Barrow-in-Furness	A
Barrow-upon-Soar RD (part Thrussington)	A1
Barry	A
Basford RD (exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley MB	A
Baxterley	A1
Beaconsfield District	A
Bearl	A
Beccles	A1
Bedale RD	A
Bedford	A
Bedlington	A
Bedlingtonshire UD	A
Bedwas	A
Beeston & Stapleford UD	A
Belper UD	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick Borough	A
Beverley MB	A
Bewdley MB	A
Bexhill-on-Sea	A1
Bideford	A1
Biggleswade	A1
Billericay	A
Billing	A
Billingham UD	A
Bilsthorpe	A
Bilston MB	A
Birchington	A1
Birkenhead	*
Birmingham CB	†A
Bishop Auckland UD	A
Bishop's Stortford	A
Bishops Castle MB	A1
Bispham	A
Blackburn	A
Blackpool	A
Blackwell RD	A
Blandford	A1
Blaydon UD	A
Blidworth	A
Blyth B.	A
Bodmin	A1
Bognor Regis	A1
Boldon UD	A
Bolsover UD	A
Bolton	A
Boston MB	A
Bourne End	A
Bournemouth District	A
Brackley MB	A1
Bracknell	A1
Bradford CB	A
Bradford-on-Avon	A1
Braintree	A1
Brandon & Byshottles UD	A
Brecon—Borough of	A1
Breconshire, County of ...	‡A1
Brent Knoll	A1
Brentwood	A
Bridgend	A
Bridlington MB	A
Bridlington RD	A1
Bridgnorth MB	A1
Bridgnorth RD	A1
Bridgwater	A1
Brierfield	A
Brighouse MB	A
Brighton & Hove	A
Bristol District	A
Broadstairs	A1
Bromsgrove UD	A
Broughton, Flint	A
Buckfastleigh	A1
Buckingham	A1
Buckley	A
Bungay	A1
Burnham-on-Crouch	A1
Burnham-on-Sea	A1
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Caernarvon	A1
Caernarvonshire, Cnty. of	‡A1
Calder Valley	A
Camberley District	A1
Cambridge	A
Cannock UD	A
Canterbury	A1
Cardiff	A
Cardiganshire, County of	‡A1
Carlisle	A

CURRENT RATES OF WAGES—Continued

Town.	Grade.
Carlton UD	A
Carmarthen—Borough of	A1
Carmarthenshire,Cnty of	‡A1
Carnforth	A
Castleford UD	A
Caterham	A
Chapel-en-le-Frith	A
Chard	A1
Charmy Down	A
Chatham District	A
Chatteris	A1
Cheadle (Staffs) RD	A
Chelmsford	A
Cheltenham	A
Chepstow	A
Chertsey	A
Chester	A
Chester-le-Street UD	A
Chesterfield MB	A
Chesterfield RD	A
Chichester	A1
Chipping Norton	A1
Chipping Sodbury	A1
Chippenham (inc. Chippenham Within and Hardenhuish)	A1
Chorley	A
Cirencester	A1
Clacton	A1
Clay Cross UD	A
Cleethorpes MB	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville UD	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett UD	A
Conway	A1
Corby UD	A
Cornwall, County of	‡A1
Corsham District	A
Coventry CB	A
Cranbrook	A1
Cranleigh	A1
Cranwell Aerodrome Site	A
Crawley	A1
Crewe	A
Crewkerne	A1
Cromer	A1
Crook and Willington UD	A
Crowborough	A1
Cuckfield	A1
Cwmbran	A
Dalton-in-Furness	A
Darlington CB	A
Dartmouth	A1
Darwen	A
Daventry MB	A1
Deal	A1
Denbigh Town	A1
Derby CB	A
Devizes	A1
Devon, County of	‡A1
Dewsbury CB	A
Didcot	A1
Diss	A1
Doncaster CB	A
Dorchester	A1
Dorking	A
Dorset, County of	A1
Dover	A1
Dovercourt	A
Driffield UD	A1
Drigg & Carleton	A
Droitwich MB	A
Dudley CB	A
Dunstable	A
Durham B	A
Eastbourne	A
E. Glam. & Mon. Val	A
East Grinstead District	A1
East Kesteven RD	A1
East Retford MB	A
Eastwood (Notts) UD	A
Ebbw Vale & District	A
Edenbridge	A1
Ely	A1
Epping	A
Evesham MB	A1
Exeter	A
Exmouth	A1
Fakenham	A1
Falmouth	A1
Fareham	A
Faversham	A1
Felixstowe	A1
Filey UD	A
Fleetwood	A
Flint MB	A
Folkestone	A1
Frinton	A1
Frome	A1
Gainsborough UD	A
Gateshead CB	A
Gillingham (Dorset)	A1
Gillingham (Kent)	A
Glastonbury & Street	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of	‡A1
Godalming	A1
Goole, MB	A
Goole RD (part—Airmyn, Hook)	A
Gosport	A
Grantham MB	A
Gravesend	A
Grays Thurrock UD Area	A
Great Yarmouth	A
Grimsby CB	A
Grimsby RD (part)	A1
Guildford District	A1
Halesowen MB	A
Halifax CB	A
Halstead	A1
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate MB	A
Hartlepool B	A
Harwell	A1
Harwich	A
Haslemere	A1
Hastings	A1
Hatfield (Herts)	A
Havant	A
Haywards Heath	A1
Heanor UD	A
Hemel Hempstead	A
Henley-on-Thames	A1
Hereford	A1
Herefordshire, Cnty. of	‡A1
Herne Bay	A1
Hertford	A
Hexham RD	A
Hexham UD	A
Heysham	A
Heywood	A
Higham Ferrers MB	A
High Wycombe	A
Hinckley UD	A
Hitchin	A
Hoddesdon	A
Holywell	A
Horley	A1
Horncastle UD	A1
Horsham	A1
Horwich	A
Huddersfield CB	A
Hull	A
Hunstanton	A1
Huntington (Staffs)	A
Ilfracombe	A1
Ilkeston MB	A
Ilkley UD	A
Ipswich	A
Isle of Sheppey	A1
Isle of Thanet	A1
Isle of Wight	A1
Jarrow B	A
Keighley MB	A
Kendal	A
Kenilworth UD	A
Kettering MB	A
Keynsham	A
Kidderminster MB	A
Kingskerswell	A1
King's Lynn	A1
Kingsteignton	A1
Kirkham	A
Knaresborough UD	A
Knutsford	A
Lancaster	A
Leamington MB	A
Leatherhead	A
Leeds CB	A
Leek UD	A
Leicester CB	A
Leighton Buzzard	A1
Leiston	A1
Leominster	A1
Letchworth	A
Lewes	A1
Lichfield MB	A
Lincoln CB	A
Liskeard	A1
Littlehampton	A1
Liverpool	*
Llandudno	A1
Llanelly (incl. Llanelly RD)	A
Llanfairfechan	A1
Llangollen	A1
London	*
Long Eaton	A
Looe	A1
Loughborough MB	A
Louth MB	A1
Lowestoft	A
Loxton	A1
Ludlow MB	A1
Ludlow RD	A1
Luton	A
Lyme Regis	A1
Lyneham (Devon)	A1
Lytham	A
Macclesfield	A
Maidenhead	A
Maidstone	A
Maldon (Essex)	A1
Maltby UD	A
Malton UD	A1
Malvern UD	A1
Manchester	A
Manningtree	A1
Mansfield MB	A
March	A1
Margate	A1
Market Harborough RD	A1
Market Harborough UD	A
Market Rasen UD	A1
Martock	A1
Maryport	A
Matlock UD	A
Melksham	A1
Melton Mowbray UD	A1
Merionethshire	A1
Merthyr	A
Mexborough UD	A
Middlesbrough CB	A
Middleton	A
Middlewich	A
Mildenhall	A1
Milford Haven UD	A1
Minehead	A1
Monmouth—Borough of	A1
Monmouthshire	A1
Morecambe	A
Moreton Valence	A1
Morley	A
Morpeth B	A
Morpeth RD	A
Mundesley	A1
Nantwich	A
Neath & Valley	A
Nelson	A
Newark MB	A
Newbury	A1
Newcastle-on-Tyne CB	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A1
Newquay	A1
Newton Abbot	A1
Normanton UD	A
Northallerton District	A
Northallerton UD	A
Northampton CB	A
North Shields	A
North Walsham	A1
Northwich	A
Norton Radstock	A1
Norwich	A
Nottingham CB	A
Nuneaton MB	A
Oakham RD	A1
Oakham UD	A1
Okehampton	A1
Oldham	A
Ongar	A
Ormskirk	A
Ossett & Horbury	A
Oswestry	A1
Oundle UD	A1
Oxford	A
Oxted	A1
Padstow	A1
Paignton	A1
Par	A1
Pembrokeshire (except Milford Haven)	A1
Penmaenmawr	A1
Penrith UD	A1
Penzance	A1
Peterborough, Soke of (Eastern Regional portion)	A1
Petersfield	A1
Pickering	A1
Plymouth	A
Pontefract MB	A
Pontypool & District	A
Pontypridd District	A
Porthcawl	A
Portishead	A
Portland Bill	A1
Portsmouth	A
Port Talbot	A
Preston	A
Princetown	A1
Pudsey MB	A
Pulborough	A1
Radnorshire, County of	‡A1
Ramsgate	A1
Raunds UD	A
Rayleigh	A
Reading	A
Redcar B	A
Redditch UD	A
Redhill & Reigate	A
Rhondda Valley	A
Richmond B (Yorks)	A
Ripon MB	A1
Rochdale	A
Rochester	A
Ross-on-Wye	A1
Rossendale Valley	A
Rotherham CB	A
Royston	A1
Rugby MB	A
Rugeley UD	A1
Rushden UD	A
Saffron Walden	A1
St. Albans	A
St. Austell	A1
St. Helens	A
St. Neots	A1
Salisbury City	A1
Salisbury Plain	A1
Sandy	A1
Sawbridgeworth	A
Saxmundham	A1
Scarborough MB	A
Scunthorpe MB	A
Seaford & Newhaven	A1
Selby UD	A
Sevenoaks	A
Shaftesbury	A1
Sheerness	A1
Sheffield MB	A
Shepton Mallet	A1
Sherborne	A1
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury MB	A
Sirhowy Valleys	A
Sittingbourne	A1
Skegness UD	A1
Skipton UD	A
Sleaford UD	A1
Slough, Windsor & Eton District	A
Smethwick CB	†A
Snettisham	A1
Solihull UD	A
Somerset, County of	‡A1
Southampton and Eastleigh	A
Southend-on-Sea Dist	A
Southport	A
South Shields CB	A
Southwold	A1
Spalding UD	A1
Stafford MB	A
Staines	A
Stamford MB	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton RD	A
Stockton-on-Tees B	A
Stoke-on-Trent CB	A
Stoke Orchard	A1
Stourbridge MB	A
Stourport UD	A
Stowmarket	A1
Stratford-on-Avon MB	A
Stroud (RD Area)	A1
Sunderland CB	A
Sunningdale	A1
Sutton Coldfield MB	A
Swadlincote UD	A
Swaffham	A1
Swanage District	A1
Swansea	A
Swindon District	A
Swinton UD	A
Tamworth MB	A
Taunton	A1
Tavistock	A1
Tenterden	A1
Teignmouth	A1
Tewkesbury	A1
Thames Haven	A
Thetford	A1
Thirsk RD	A
Thorpe Bay	A
Thurrock UDC Area	A
,, North of to Billericay	A
Tilbury	A
Todmorden MB	A
Tonbridge	A1
Torquay	A
Totnes	A1
Tring	A1
Trowbridge	A1
Truro	A1
Tunbridge Wells	A1
Tynemouth CB	A
Ulverston	A
Uppingham (Salop)	A1
Uttoxeter RD	A1
Uttoxeter UD	A1
Wakefield CB	A
Wakefield RD	A
Walsall CB	A
Wallsend B	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A1
Warrington	A
Warwick MB	A
Wednesbury MB	A
Wellingborough UD	A
Wellington UD	A
Wellington (Somerset)	A1
Wells (Norfolk)	A1
Wells (Somerset)	A1
Welwyn	A
Welwyn Gar. City	A
West Bromwich CB	A
Westbury	A1
Westcliff-on-Sea	A
Westerham	A1
West Hartlepool CB	A
Westmorland (except Kendal)	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth (including Portland Bill, excluding Portland Stoneyards)	A1
Whitby UD	A1
Whitby RD	A1
Whitehaven	A
Whitley & Monkseaton UD	A
Whitstable and District	A1
Wickford	A
Widnes	A
Wigan	A
Wigton	A1
Wilmslow	A
Wilts. County of	‡A1
Wimborne	A1
Wincanton	A1
Winchester	A1
Windermere	A1
Wisbech	A1
Witham	A1
Withernsea UD	A1
Woking	A1
Wokingham	A1
Wolverhampton CB	A
Wolverton District	A1
Woodbridge	A1
Woodhall Spa UD	A1
Woodstock	A1
Worcester CB	A
Workington	A
Worksop MB	A
Worthing	A1
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A1
Yate	A1
Yeovil Borough	A1
York CB	A
Ystalyfera	A

*For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 6d.; Labourers, 3s. 11¼d. In the case of London the rate beyond the 12-mile radius is: Craftsmen, 4s. 5¼d.; Labourers, 3s. 11d. †Plus 2d. per working day. ‡This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 6d. per hour. Women engaged on work other than craft processes, 3s. 2d. per hour.

For Building Trade Wages in Scotland see page 344.

NEWS IN BRIEF

Tall Flats, Hull

A SCHEME which will set the pattern for Hull's central housing development for the next 25 years has just been announced. The scheme envisages two 12-storey flats, five seven-storey and five four-storey blocks, to house over 1,000 people on less than eight acres of land at Anlaby-road, Hull. This forms part of a long-term project for a new central housing area lying between Anlaby- and Hessle-roads, stretching from the city centre out to Bean-street. The scheme has been approved in principle by Hull Corporation Housing and Town Planning Committee, who are to submit it to the Ministry of Housing and Local Government. The site will be the first smokeless zone in the city.

Rail Takings Up

British Transport Commission traffic statistics for January, last, just issued, show that passenger takings increased by 22 per cent. and rail freights by 11 per cent. A large proportion of these increases have been brought about by the diversion of traffic from the roads because of the fuel situation.

Builders' Staff Conference

Wates, Ltd., builders and civil engineering contractors, held the annual conference of their executive staff at Eastbourne from February 1-4. The conference opened with a dinner at which Mr. Graham Hutton, the economist, as principal speaker, stressed Britain's need for incentives and more capital equipment. The directors examined the work of each department in turn and working parties were formed for discussion of specific topics. The conference closed with a dinner at which Mr. Norman Wates spoke of the benefits which it was hoped would emerge from the conference and looked forward to many of the recommendations which had been made being carried into practice in the current year.

Education Report Issued

The official report of the seventh Conference on Education in the Building Industry, held at Ironmongers Hall, EC4, on November 7 last, has been issued by the LMBA, from 47, Bedford-square, WC1.

Formal Factory Opening

On the occasion of the opening of the company's new factory at Feltham, Middlesex, the chairman and directors of Eutectic Welding Alloys Co., Ltd., held a reception at the Dorchester Hotel on January 14. The principal guest was A. J. Speakman, Deputy Director of the British Productivity Council.

MoW Building Week

The Ministry of Works are organising a building week exhibition in Maidstone to run from February 21-26, next. The exhibition will be at the Maidstone Technical College, Tonbridge-road, Maidstone, and will be open to the public.

Travelling Scholarships

The Worshipful Company of Plumbers are offering two travelling scholarships to be awarded in 1957 to qualified competitors residing in Great Britain or Northern Ireland. The intention of the scheme is to select registered plumbers who prove themselves educated craftsmen qualified to take executive positions in the craft of plumbing, or teachers of plumbing.

Candidates must be between 21 and 30 years of age on January 1 of the year of entry.

Each scholarship will be of the value of £100 and successful candidates will be required to visit a town or towns or district of importance in England or abroad for the purpose of studying plumbing conditions, his proposed plan of travel and study to be previously approved by the Company. The successful candidates may, at the discretion of the company, have the added honour and distinction of having the Freedom of the Company conferred upon them. Names of candidates must be sent before February 28 to the Clerk, Worshipful Company of Plumbers, 4 College Hill, London, EC4.

Synthetic Detergents Committee

The Standing Technical Committee on Synthetic Detergents, the intended formation of which the Minister of Housing and Local Government announced in the House of Commons on December 18, has now been appointed, in consultation with the Secretary of State for Scotland, under the chairmanship of Mr. H. W. Cremer, CBE. The secretary is Mr. D. H. A. Price, BSc, Ministry of Housing and Local Government.

The Late Francis C. Korn

The directors of G. Percy Trentham, Ltd., announce with great regret the death of Mr. Francis C. Korn, buyer and assistant secretary to the company, which he served for 30 years. He died very suddenly after a short illness. Mr. Korn had many friends in the building and civil engineering industry.

Catalogues Wanted

Lawdon Partners, Ltd., announce that they will be pleased to receive trade catalogues and price lists, to be sent to 157 Victoria-street, SW1.

Ferodo Design Competition

This year Ferodo, Ltd., are taking the unusual step of inviting architects and designers to submit cover designs for a descriptive folder of particular interest to their own profession. In a letter circulated recently to some 22,500 practising and student architects and designers in this country, the company gives details of a competition which offers prizes of £100, £50 and £20 for designs considered the most suitable for the front cover of a new 8½ in. by 5½ in. Ferodo Stairtread folder.

Full details of the practical requirements are given. The design for line or tone treatment, or a combination of both, must be suitable for four-colour letterpress printing with the addition of a silver printing if felt desirable. There is no entrance fee for the competition, which closes on March 31, and copies of the entry form can be obtained from Publicity Department, Ferodo, Ltd., Chapel-en-le-Frith, Derbyshire. Details of the winning designs, selected by a board of assessors appointed by the company, will be published in due course.

COMPANY NEWS

The Universal Asbestos Mfg. Co., Ltd. have recommended a final dividend of 7½d. per share (less tax) which, with the interim dividend of 4½d., makes a total dividend of 1s. for the year.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

Briggs & Jelbert, Ltd. (572733.) Regd. Oct. 11. 274, May-la., Kings Heath, Birmingham. Public works contrs. Nom. cap.: £1,000. Dir.: J. A. Briggs.

Building Consultants, Ltd. (572734.) Regd. Oct. 11. Nom. cap.: £2,000. Dir.: D. W. Veal, 26, Boundary-rd., E17.

C. Charles & Co., Ltd. (572737.) Regd. Oct. 11. 164, Cardigan-rd., Leeds. Bldrs. Nom. cap.: £1,000. Dir.: Bridget P. Charles.

G. Hall & Sons (Marlowes), Ltd. (572723.) Regd. Oct. 10. 1, Marlowes, Hemel Hempstead, Herts. Bldrs. Nom. cap.: £3,000. Dir.: S. Hall.

R. W. Messenger, Ltd. (572696.) Regd. Oct. 10. 161, Warwick-rd., Banbury, Oxon. To take over bus. of bldg. contr. carried on as R. W. Messenger. Nom. cap.: £10,000. Dir.: R. W. Messenger.

W. H. Applin & Co., Ltd. (572655.) Regd. Oct. 9. 15, Gildredge-rd., Eastbourne. Bldrs. Nom. cap.: £2,000. Dir.: S. F. Dobdinson.

T. Evans & Son, Ltd. (572844.) Regd. Oct. 12. Bethania-yd., Davies-rd., Neath. Bldrs. Nom. cap.: £1,000. Dir.: T. Evans.

J. W. Geary, Ltd. (572831.) Regd. Oct. 12. 6, Bywood-av., Croydon, Surrey. To take over bus. of a bldr. carried on as J. W. Geary. Nom. cap.: £3,000. Dir.: J. W. Geary.

D. Emrys Davies, Ltd. (572821.) Regd. Oct. 12. The Warren, Mill-la., Penywern, Neath. Bldrs. Nom. cap.: £5,000. Dir.: D. E. Davies.

Collins & Crouch Ltd. (573672.) Regd. Nov. 1. 162b, West-st., Fareham, Hants. Bldrs. Nom. cap.: £2,000. Permt. Dir.: P. J. Collins.

PERSONAL COLUMN

MR. JAMES A. OLIVER has been appointed sales director of Aygee, Ltd. Mr. Oliver was invited to join the board as technical director in 1935, at which time he was actively engaged in introducing aluminium as a medium for patent glazing and curtain walling.

MR. L. BAILEY has been appointed works manager of United Steel Structural Co., Ltd., Scunthorpe, with effect from January 1, 1957. He was formerly production manager.

MR. W. H. MCFADZEAN, chairman and managing director of British Insulated Callender's Cables Ltd., left London on January 19 by air on a round-the-world tour and expects to be back in this country just before the end of March. He will be visiting BICC group organizations in Pakistan, India, Singapore, Australia, New Zealand and North America.

Langley London, Ltd., announce the new addresses of two of their representatives. They are: MR. J. O. WHINHAM (South Wales representative), Robin's Rest, Vennaway-la., Park Mill, Swansea. MR. J. F. DUXBURY (Midlands representative), The Nook, 32, Westdown-dr., Thurmaston, Leics.

MR. W. M. ROBB, chairman and managing director of Road Machines (Drayton), Ltd., is at present visiting Canada and the USA with the object of stepping-up the export drive for the British-invented monorail conveyor system as used on major construction sites and buildings.

MR. W. H. HAIGH, until recently sales office manager of Thos. Green and Sons, Ltd., has been appointed contracts manager for Messrs. Oil Road Rollers, Yardley Wood-rd., Moseley, Birmingham, 13, and W. T. Palmer and Co. (Leicester), Ltd., engineers and road rolling contractors, Thurmaston, Leicester.

GENERAL SIR LESLIE CHASEMORE HOLLIS, KCB, KBE, has been elected chairman of the Peter Lind Holding Co., Ltd., of Peter Lind & Co., Ltd., and of Tileman & Co., Ltd.

The Unit Construction Co., Ltd., announces that, following the resignation of MR. S. W. G. DEAR due to illness, MR. J. C. BLACKMORE is appointed regional manager of the company's North West Region. Other changes within the group are the appointment of MR. A. W. E. FLETCHER as resident director of Pierhead Ltd., at Speke, Liverpool, and the promotion of MR. J. P. MITCHELL to general manager of the same firm. These changes will take effect from March 1.

Waterproofed Cement

A SIGNIFICANT NEW PRODUCT WITH WIDE APPLICATIONS

Details were made known in London last week of a significant new product—waterproofed Portland cement—which should have wide applications in concreting work on exposed sites where normal protection of bulk supplies is difficult, and also in soil stabilisation. By means of an additive introduced in the last stage of manufacturing by a spray process, the particles of the cement are given a protective covering which inhibits hydration. This protective film is shed during the mixing process and the concrete develops normal strength. Besides gaining in dustlessness, the resulting concrete is claimed to be water-repellent and resistant to attack from acid soils. The cement, known as 'Pectacrete hydrophobic cement,' is now under manufacture in bulk by a well-known Midlands cement company. Its development was one of the last works of the late Professor F. Webster. Following are notes issued by the developing company :

Notes on 'Pectacrete Hydrophobic Cement'

HYDROPHOBIC cement is a waterproofed cement which does not deteriorate when exposed to damp atmospheric conditions. It is a Portland cement to which an additive has been introduced in the last stage of manufacturing by means of spraying. This gives the grains a protective covering which inhibits hydration. 'Pectacrete' is the name given to the most recent development in producing hydrophobic cement. It is the result of years of research at the Bulstrode Laboratories, Gerrards Cross, and is being marketed by Hydrophobic Cement, Ltd., through a leading company of cement manufacturers.

When ordinary Portland cement is used, storage and transit losses due to exposure may amount to as much as 15 per cent, particularly in tropical countries. Hydrophobic cement is immune in this respect, so that a substantial saving can be effected on all jobs where the risk of damage through exposure has to be taken into account. Supplies of hydrophobic cement can be made available in most parts of the world at from 20s. to 25s. a ton above the ruling price for Portland cement, subject to day-to-day variations.

'Pectacrete' hydrophobic cement reacts entirely normally when mixed with sand or aggregate; the abrasive immediately breaks down the protective film and mixing is done in the usual way at normal speed. Setting time, fineness, tensile strength and compression strength are all well within the requirements of BS12 : 1947, for ordinary Portland cement.

Uses of New Product

Hydrophobic cement can be used in place of ordinary Portland cement for all constructional purposes, as well as for soil stabilisation and block making. In reinforced concrete work it makes a water-repellent concrete which protects the reinforcing metal from corrosion and is very resistant to frost damage; it also serves to prevent attack from acid soils. For soil stabilisation and block making it is used in similar proportions to ordinary cement.

A point of special importance in connection with soil cement work is that extended lengths of the stabilising agent can be laid out in advance of the mixing machines, regardless of the weather conditions, whereas in changeable weather, owing to the risk of damage by rain, this is not possible with ordinary cement and will result in appreciable saving of time and labour costs.

Test Results

Tests carried out in England, Germany and Holland amply confirm the superiority in weather-resistance of 'Pectacrete' hydrophobic cement to ordinary Portland cement. At Hamburg, tests made in cement manufacturers' laboratories with samples made in their own ball mills, with additives supplied from Bulstrode, clearly demonstrated that the rate of deterioration of the hydrophobic cement on exposure is extremely slow when compared with that of ordinary cement made from the same clinker and that its moisture-resistant properties are not offset by loss of other qualities demanded by standard specifications, either in the cement itself or in the end product of which it is a component.

A series of tests at the Ellis Research and Testing Laboratories, Albury, Surrey, relating to loss on ignition, fineness, soundness, setting time, water absorption and compression indicate that mortars and concrete made with hydrophobic cement are themselves more resistant to moisture penetration than such products when made with ordinary Portland cement. The tests in Germany also showed that the hydrophobic cement is superior as regards maximum variation in breaking load and crushing strength. This superiority also exists in soil cement work where the hydrophobic properties make the use of waterproofed cement for soil stabilisation particularly advantageous.

Tests carried out towards the end of 1956 by R. H. Harry Stanger, Elstree, fully confirm the results of the experiments previously conducted at Bulstrode, Albury and Hamburg. The certified results (December 17, 1956) are:

	BS12 : 1947	Hydrophobic Cement
FINENESS:		
Residue, 170 mesh	10 per cent	6.4 per cent
Specific surface (minimum)	2,250 sq. cm./gm.	2,860 sq. cm./gm.
SOUNDNESS:	To expand not more than 10 mm.	Expansion =0.5 mm.
SETTING TIME:		
Initial	30 mins. (minimum)	240 mins.
Final	10 hrs. (maximum)	5 hrs. 30 mins.

(Percentage of water required to give a paste of standard consistency =26 per cent.)

TENSILE STRENGTH: (3 sand, 1 cement)		
After 3 days	300 lb./sq. in.	465 lb./sq. in.
After 7 days	375 lb./sq. in.	515 lb./sq. in.

(Percentage of water used in gauging : 7.6 per cent.)

COMPRESSION STRENGTH: (3 sand, 1 cement)		
After 3 days	1,600 lb./sq. in.	2,650 lb./sq. in.
After 7 days	2,500 lb./sq. in.	3,490 lb./sq. in.

(Percentage of water used in gauging : 10 per cent.)

CHEMICAL ANALYSIS:		
Insoluble residue	1 per cent	0.18 per cent
Magnesia	4 per cent	0.86 per cent
Loss on ignition	3 per cent	2.22 per cent
Total sulphur expressed as SO_4	2.75 per cent	1.55 per cent

It will be seen that the foregoing results fully comply with the requirements of BS12: 1947 for ordinary Portland cement. It is thought that cement made from clinker as used by British commercial cement manufactories (the tests were conducted with cement made from clinker of a lesser standard) will show even higher strength. Tests at Bulstrode on material from small heaps of hydrophobic cement which had been exposed to weather on grass verges for 15 months gave an initial setting time of 1 hr. 20 mins., a final setting time of 5 hrs. 27 mins. and a loss on ignition of 3.817 per cent. The water pick-up of two samples (each of 200 gm.), one of hydrophobic and the other of ordinary cement, after being stood on porous plates for 24 hours, was:

Hydrophobic sample: 10.5 gm. (5.25 per cent by weight.)

Ordinary cement sample: 127.5 gm. (63.75 per cent by weight.)

Effect of 'Pectacrete' Additive on the Grinding of Clinker

A study of the effect of the additive employed in the manufacture of hydrophobic cement on the grinding of clinker, made in Paris, showed that it improves grindability in addition to conferring hydrophobic qualities on the product.

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OVERSEAS BUILDING

From Our Own Correspondents

AUSTRALIA.—A proposal that a new terminal be provided at Melbourne Airport has been made by the Director of Civil Aviation, Mr. Anderson. He said recently that the Federal Government was unlikely to provide the money for such a project. However, it could be carried out by private enterprise and show a profit. Mr. Anderson pointed out that Melbourne Airport now had international status, with nearly 1,000,000 passengers passing through each year. Unfortunately, the present airport buildings were unpretentious. A new terminal with restaurants, shops and other amenities could prove a commercial proposition.

CANADA.—A contract worth about $1m. to build a parking garage in Vancouver has been awarded to the Canadian subsidiary of John Laing and Son, Ltd., of London. The contract will be carried out by John Laing and Son (Canada), Ltd., of Vancouver. It calls for the construction of a six-storey garage for 800 cars for Woodward Department Stores, Ltd., Vancouver. It is expected to be completed in August this year.

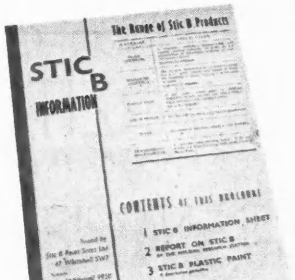
GUATEMALA.—Recently the Guatemalan Congress promulgated a decree authorising the issue of a Treasury Bond loan to be applied to road and port works. Funds will be allocated as follows: completion of the Panamerican Highway; construction of a road from Zacapa to Esquipulas; port installations at Santo Tomas; port installations at Champerico; road from Guatemala to the Peten; public works in various districts excepting the capital; improvements in the communications system. Total cost is in the region of £6m.

KENYA.—Nairobi City Council on February 5 approved a programme of capital expenditure for the period 1956-61 amounting to £9,976,410. Of this £2,471,205 will go on water supply, the largest individual item being £800,000 for the additional Sasumua-Ruira pipeline; £1,752,800 on sewerage, including £914,000 on disposal works; £1,129,123 on roads, drains and bridges; £2,701,713 on African affairs of which £1,392,500 will be spent on the joint Government - Council housing scheme; £580,000 on European housing; £578,500 on Asian housing, where the principal scheme is the Ngara flats; and £322,000 on the Town Hall extension. Work envisaged to the end of this current year will have cost £2,351,191.

MALAYA.—Sir Sydney Caine, in his capacity as economic adviser, has assessed the capital development requirements of the Colony as a whole, for the period 1958-1962, at approximately £80m. Of these requirements, projects totalling about £60m. are regarded as essential and have been placed in a priority list. This list provides £25m. for general development by the Government and includes allocations for education and health. Some £20m. is provided for the City Council, mainly in connection with the development of public utilities. . . . It is understood that the Singapore Improvement Trust is shortly to receive a further £2½m. loan from the Government for its slum clearance and re-housing programme. The Trust has planned to spend over £12m. during the next five years to build houses for slum dwellers and others. This programme is in accordance with the master plan which estimates that 10,000 new houses must be built every year to accommodate the increasing population. . . . Singapore Harbour Board have decided to extend King's Dock to enable tankers of 80,000 to 100,000 tons to be accommodated. . . . Malayan Railway authorities are considering the possibility of building a line from Kuala Lipis, in the centre of Pahang to Trengganu. No details of the plan yet worked out.

SUDAN.—It is understood that work on the Port Sudan Harbour Extension, which was to have started early in 1957, will be delayed as a revised form of tender has had to be completed by the consulting engineers. Tenders are now to be accepted during April and adjudication is to take place in May. Work on the quays is expected to be put in hand late this year and will not be completed until late 1959. Some parts of the new quay extensions should be in use before completion of the work. . . . The Government seems determined to proceed with the Roseires Dam Scheme. Tenders are expected to be called shortly.

THAILAND.—It is understood that the Thai Government, convinced by a report from Bangkok Electricity Works that from the beginning of 1957 a serious electricity shortage is likely to develop in Bangkok, have approved the following power projects: the Nakorn Chaisri thermal power station—extra units to produce further power at Wat Lieb and Samsen power stations (Bangkok)—a 10,000 kw. thermal power station at Tung Mahamek (Bangkok south-eastern suburb)—a 12,500 kw. atomic power plant. . . . In the north-east the scheme for a 2 x 5,000 kw. lignite-fuelled power plant at Maemoh, near Lampang, is to go out to tender afresh and to be financed from ICA funds. It has also been reported that, as the Yan Hee plant would in any case not serve southern Thailand, the Prime Minister has directed that the hydro-electric potentialities of the waterfall of Tone Nge Chang (10 miles WSW from Haadyai) be re-studied. The Premier is also reported to have ordered a survey to be made of the hydro-electric potentialities of the Khaoyai Falls, 60 miles NE from Bangkok. . . . United States Aid under the ICA programme is this year to be used for more 'solid' projects; the comparatively poor north-east is to benefit particularly from the highways which are to be built as well as irrigation projects. The programme will also aid power facilities improvement; Bangkok City Planning; building of a school of nuclear science and atomic energy; the north-east highway; and ground water exploration.



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Cement Factories for Ceylon

In an economic report on Ceylon for December, 1956, issued by the Export Services Branch, it is reported that Czechoslovakian advisers who visited that country in November under the recent economic co-operation agreement, have completed their preliminary investigations into the establishment of two further cement factories. It is reported that Czechoslovakia is prepared to supply the necessary equipment on long-term credit terms, and the Ministry of Industries will give the projects the highest priority.

It is also stated in the report that the United States Aid Mission which is now in Ceylon has offered to provide that country with highway-building equipment valued at Rs.4 million and to construct with it a 20-mile stretch of road to demonstrate the technique.

Danish A-station

A British and an American engineering company—Mitchell Engineering, Ltd., of London, and Atomic Incorporated, of New York—have offered jointly to supply Denmark with an atomic power station with a capacity of 20,000 kilowatts. If the offer was accepted the power station, which could be built underground, could be ready before 1960 and would cost about £2m.

CONTRACT OPEN

***India.**—(a) Construction of various major bridges; (b) Construction of various minor bridges. Additional information. Special Register circular TEN/23915-23917 issued on January 28, 1957, gave information concerning a call for tenders for the above projects issued by Western Railway, Bombay. (Tenders Numbers S and C 239 and S and C 240.) A copy of the tender documents has now been received and is available for loan to United Kingdom firms in order of receipt of applications. (Ref. (a) ESB/2606/57 and (b) ESB/2607/57; Tel.: Chancery 4411, ext. 771 or 738.)

* From the Board of Trade Special Register Information Service. The telephone number and extension at the end of the paragraphs relate to the department of the Export Service Branch, Lacon House, Theobalds-road, WC1, where further information can be obtained.

The SCOTTISH BUILDER

Gorbals Redevelopment Plan

THE Gorbals-Hutchesontown redevelopment project has been approved by the Rt. Hon. John S. Maclay MP, Secretary of State for Scotland. The plan is the largest redevelopment scheme in terms of population so far put forward under the Planning Acts in the UK. The Secretary of State has also approved plans submitted by Glasgow Corporation for the first development of 96 flats as part of the project on a site already owned and cleared. Mr. Maclay's approval means that 111 acres of land in the Gorbals can be treated as an area of comprehensive redevelopment. Eighty acres will be designated as subject to compulsory acquisition for redevelopment purposes.

The area at present has 7,600 houses with a resident population of 26,000 and approximately 100 industrial undertakings, the vast majority of which are small 'backyard' factories. Almost all the houses are either unfit, obsolescent or sub-standard. The average density of the population in the area is over 400 people per acre. The Corporation propose to redevelop the whole area over a 20-year period, and ultimately to resettle about 10,000 people in some 3,500 houses. The density will then be 164 people per acre and 51 per cent. of all the rehousing will be in 10-15 storey blocks and a majority of the balance will be four-storey flats.

The Secretary of State's decision is limited to approval of the limits of the area to be redeveloped and to the designation as subject to compulsory acquisition of the land needed for the first 15 years of the development. Details of the layout and buildings will need at varying stages to be submitted to the Secretary of State. Approval of the designation does not give automatic power to Glasgow Corporation to take compulsorily the land needed. It gives them a general enabling power to make separate Compulsory Purchase Orders if necessary as and when needed to get possession of the land.

Experiment in Glasgow

GLASGOW Education Committee have decided, by 22 votes to 15, that, as an experiment and subject to certain conditions, a primary school at Easterhouse should be built by direct labour without competitive tendering. The decision is subject to the approval of the Housing Committee and the corporation. Plans by the city architect and planning officer, Mr. A. G. Jury.

Glasgow Zoo Developments

DEVELOPMENT PLANS announced in the annual report of the Zoological Society of Glasgow and the West of Scotland include a new tropical house, a polar bear den, a new restaurant, and administration offices at the Calderpark Zoo. The financial position of the society does not allow this work to begin immediately, but it will be undertaken in due course.

NEW BUILDINGS

Aberdeen.—Plans in hand for additions and alterations to Cromwell-road cinema, Torry-st., for James F. Donald (Aberdeen Cinemas), Ltd., Gilcouston. A: George Watt & Stewart (A), 214, Union-st.

Aberdeen.—Plans to be prepared for alterations and additions to Towie Protestant prim. sch. A: G. M. Keith (A), Architectural Dept., 11, Broad-st.

Ayr.—Plans approved for offices and workshops at Arthur-st., for Fairbairn & Co., Ltd., 93, Hope-st., Glasgow, WC2.

Ayrshire.—Plans prepared for central tower buildings at Prestwick Airport for the Ministry of Transport and Civil Aviation (Scottish Division), Broomhouse-rd., Saughton, Edinburgh. A: John Keppie & Henderson & J. L. Gleave (PP/A), 21, Woodside-pl., Glasgow, WC3.

Dundee.—Plans in hand for offices, workshops and other buildings at junction of Peep O'Day-la. and East Dock-st., for the Scottish Gas Board.

Edinburgh.—Plans approved for erection of new factory at Viewforth for the North British Rubber Co., Ltd., Edinburgh, following the demolition of factories already on that site.

Fifeshire.—Plans in hand for alterations and additions to Kirkcaldy Technical College. A: R. S. Lawrie (A), Architectural Dept., Council-bldgs., St. Catherine-st., Cupar.

Glasgow.—Corporation has appointed J. Barr & Son (FRIAS), 213, St. Vincent-st., WC2, for the Roystonhill Development Scheme.

Glasgow.—Plans in hand for extensions at Shieldhall Buildings for the Clyde Extraction Oil Co., Ltd., King George V Dock. A: F. A. MacDonald & Ptnrs., 11, Woodside-terr., Charing Cross, WC3.

Glasgow.—Plans prepared for 20 houses at Whittington-dr., Anniesland. A: N. S. McFadzean (F), 137, West Regent-st., WC2. Principal contrs., J. Lawrence & Co. (Glasgow), Ltd., Blythswood, WC2.

Glasgow.—Plans prepared for new foundry at London-rd., Dalmarnock, for Fry's Metal Foundries, Ltd., 108, John-st. A: Wylie, Shanks & Underwood (F/A), 12, Claremont-gdns., WC3.

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SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from February 4, 1957. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen 4s. 4½d.; Labourers 3s. 10d.

For apprentices, the rates are:

Year.	*Percentage of Craftsman's rate.*	*For week of 44 hours.* s.	d.
1st	25	48	1½
2nd	33½	64	2
3rd	50	96	3
4th	66⅔	128	4
5th	75	144	4½

For female labour, the rates are:

	s.	d.
Operatives on craft operations (at end of probationary period)	3	10
Operatives on labouring operations (at end of probationary period)	3	4

Glasgow.—Plans prepared for 12 flats of houses and 11 shops at Carmunnock-rd. site. A: A. B. Campbell (F), 128, Elderslie-st., WC2. Principal contrs.: Mactaggart & Mickle, Ltd., 107, West Regent-st., WC2.

Glasgow.—Plans prepared for messroom and office block for Colvilles, Ltd., at Govan-rd.; call stand and canteen for the National Dock Labour Board at Yorkhill Quay; rebuilding of the existing motor showrooms and offices of SMT Sales and Service, Ltd., at New City-rd.; block of 12 storeys at 7, Victoria-circus, for G. Tombazi, involving 25 maisonettes and six flats with consulting rooms and a garage; an office block for A. Stuart & Sons (Gl), Ltd., at junction of Renfrew-st. and Cambridge-st.

Glasgow.—Plans prepared for reconstruction of Govan Refuse Works power station. Merz and McLennan, engineering consultants, Glasgow.

Glasgow.—Plans approved by Corporation for developments at Castlemilk Unit No. 3, Site 5, and Castlemilk Unit No. 4, Site 12, for the provision of a prim. sch. and janitor's house on each site.

Glasgow.—Plans approved for alteration to shops at 187-9, New City-rd. for J. Grant & Co. (West), Ltd., and conversion of back-courts and eight houses at 8-10, Gayfield-sq. after site inspection. A: Baron Bercott, (A), 118, Blythswood-sq., Glasgow.

Glasgow.—Plans approved by Ministry of Works for telephone exchange to be constructed at 313, Golfhill-dr.

Kirkcaldy.—Plans approved for erection of two-storey building at 66, High-st., for Oliver Melville & Co.

Lanarkshire.—Plans prepared for garage and filling station at 77 to 83, Carfin-st., New Stevenson. A: Boswell, Mitchell & Johnston (F), 256, West George-st., Glasgow, WC2.

Perth.—Plans in hand for development of 280 houses at Lethan. A: J. Penman (F), Municipal-bldgs., Tay-st., Perth.

Perth.—Housing Committee has approved the erection of two multi-storey flats as part of the redevelopment of the Pomarium-st. area. These will be an 11-storey high block and an eight-storey block, giving 88 flats in all.

Perth.—Town Council is planning the erection of a major central bus station to act as the focal point of Perthshire traffic and to link up with the existing road services.

Stirling.—Plans in hand for reconstruction at three schools—Caleforia, Comely Park and Carron. A: A. J. Smith (A), Architectural Dept., Spittal-st., Stirling.

Tannockside.—Plans in hand for houses and shops at Aitkenhead-rd. site. A: S. McColl (F), 23, Beckford-st., Hamilton.

The Builder

FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

FEBRUARY 18.

***†Somerset CC.**—Phase II of new school at Wellington and at West Monkton. County A, Taunton. Dep. £2 2s. each.

***†West Riding CC.**—Additions, Bingley Cottingley JM and I school; cloakroom and conveniences, Normanton Lee Brigg secondary and infant school. Deputy County A, Bishopgarth, Westfield-rd., Wakefield. Dep. £2 2s. each. Tender by March 25.

FEBRUARY 21.

***†Surrey CC.**—Additions to Bedelsford day open-air school Kingston upon Thames, County A, Kingston upon Thames.

***†Surrey CC.**—County primary school, Sutton, Belmont. County A, Kingston upon Thames.

FEBRUARY 22.

***†Birmingham City C.**—Doctor's house and surgery at Rubery Farm estate. City A. Dep. £2 2s. each.

***Watford BC.**—Repair and decoration of houses on Corporation's estate. BE&S.

FEBRUARY 25.

***†Essex CC.**—Tech. sch., Romford, Lodge-la. County A, Chelmsford.

***†Watford BC.**—Repairs to houses on Corporation estates. F. C. Sage, BE&S.

FEBRUARY 26.

***†Leeds Regional Hospital Board.**—Reconstruction of verandahs to male block, Clifton Hospital, York. Arch. to Bd., Par-parade, Harrogate. Dep. £2 2s.

***†Northants CC.**—Extensions, Elm Bank, Northampton-rd., Kettering, and at The Lindens, Midland-rd., Wellingborough, for Homes for the Aged. County A, Northampton.

FEBRUARY 27.

***†Durham CC.**—Curtain wall panels, Bishop Auckland Woodhouse Close school. County A, Durham.

FEBRUARY 28.

***Hunts Standing Joint Committee.**—Two pairs of police houses off Thrapston-rd., Brampton. County A, Huntingdon.

MARCH 1.

***Ealing BC.**—Renewal of front boundary fencing and gates. BE. Dep. £2.

***†Hants CC.**—Practical block at Portchester county sec. sch. and Totton Testwood county sec. sch. County A, Winchester.

***Walthamstow BC.**—Additions 29, Wingfield-rd. Boro' A, E&S. Dep. £2 2s.

***Weston-super-Mare BC.**—Eight shops with six maisonettes and two flats, etc., Oldmixon/Coronation housing estates. TC.

***†West Sussex CC.**—School, Bognor Regis. County A, Chichester.

MARCH 2.

***Bognor Regis UDC.**—28 houses, Gravits-la. E&S. Dep. £2.

***Ripley UDC.**—42 houses, Woodsite estate. S. Dep. £2 2s.

MARCH 4.

***Buxton BC.**—12 shops and 24 flats, Victoria Park housing estate, Fairfield. Geo. Robb, architect, Lintols, Manchester-rd., Chapel-en-le-Frith. Dep. £2 2s.

***Edmonton BC.**—Sub-contracts for tiling, composition flooring and glazing work, also supply of builders' materials. TC.

***Frinton and Walton UDC.**—Additions, Church Road car park bldgs., Walton-on-the-Naze. H. D. Harrison, E&S. Dep. £2 2s.

***Radnorshire CC.**—Formation of playing fields, etc., Clyro Court secondary modern school. C, Llandrindod Wells. Dep. £2 2s.

MARCH 5.

Brighton CBC.—Two blocks of four two-storey flats at South Woodingdean estate. Boro' S. Dep. £2 2s.

Brighton CBC.—Two blocks of 12 three-storey flats and one block of four two-storey flats at junction Hornby-rd./Taunton-gr., Lower Bevendean estate. Boro' S. Dep. £2 2s.

***Merthyr Tydfil CB.**—Extensions Cyfarthfa grammar sch. BE&S. Dep. £4 4s.

MARCH 6.

***Middlesbrough Diocese Trustees.**—Erection of St. Peter's RC primary school, St. Margaret's-grove, South Bank. T. A. Crawford (L), 80, Borough-rd. Dep. £5 5s.

MARCH 7.

***Reigate BC.**—43 dwellings, Rushetts Farm estate. BE&S. Dep. £2 2s.

MARCH 8.

Elstree RDC.—Three houses, six flats and one bungalow, in one block, with garages, outbuildings, drainage, etc., on site adjoining 'The Black Lion' PH, Shenley. E&S. Dep. £2 2s.

MARCH 9.

***Oldham EC.**—Prim. sch., Alt. Schools A, Education Offices, Union-st. West. Dep. £2 2s.

***Swale RDC.**—Two old people's bungalows, High-st., Newington. E&S. Dep. £3 3s.

MARCH 11.

***Guildford RDC.**—38 dwellings, West Horsley. J. W. Snape, E&S. Dep. £2 2s.

***Reading CB.**—Two pairs of houses, Valley estate, Tilehurst. Boro' A. Dep. £2 2s.

***Rugby BC.**—4 shops and 2 flats with 6 maisonettes, Newbold Glebe estate. BS. Dep. £2 2s.

MARCH 12.

Ashbourne UDC. — Four three-bedroom houses and eight two-bedroom flats at Park Land. E&S. Dep. £2 2s.

***Slough BC.**—Two blocks of aged persons' dwellings, Stoke Poges-la., (E) estate. BE.

MARCH 13.

***Bournemouth CB.**—Additions, Winton and Moordown school, Coronation-av. and Oswald-rd., to form three separate schools. Boro' A. Dep. £2 2s.

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***Bournemouth CB.**—Convenience, East Overcliff Crazy Golf Course, East Overcliff-dr, Boro' A. Dep. £2 2s.

MARCH 18.

Doncaster CBC.—Erection of Curlew (Clayla.) prim. sch. (160 places). T. H. Johnson & Son, architects, 20, Priory-pl., Doncaster. Dep. £3 3s.

***Merioneth EC.**—Prim. sch., Talsarnau, nr. Harlech. N. L. Jones, County A, Dolgelley. Dep. £3 3s.

***Stepney BC.**—Offices, Central Garage, The Highway, E14. BE&S. Dep. £2 2s.

MARCH 21.

***Croydon CB.**—44 dwelling units, Elmwood-rd., also r.c. frames for 28 units. BE.

MARCH 22.

Burton-upon-Trent CBC.—Demolition of existing buildings, additions to technical college in r.c. and brick and layout of grounds. Richard Sheppard & Ptnrs., architects, 5, Southampton-pl., WC1. Dep. £2 2s.

***Eastbourne CB.**—New Victoria-dr. jun. sch. Howard V. Lobb & Ptnrs., architects, 20, Gower-st., WC1. Dep. £2 2s.

NO DATE.

***Radnorshire CC.**—Demolition, 'The Cottage,' Knighton. C: Llandrindod Wells.

PAINTING, MATERIALS, ETC.

FEBRUARY 21.

†Braintree RDC.—Building materials; water mains and fittings. C.

FEBRUARY 25.

Dorset CC.—Road materials. County S.

FEBRUARY 28.

Kent CC.—Road materials. County S.

Leighton Buzzard UDC.—Road materials. E&S.

MARCH 4.

Bucks CC.—Road materials. County S.

Litherland UDC.—Road materials. E&S.

MARCH 5.

Broadstairs and St. Peter's UDC.—Road materials. E&S.

MARCH 11.

***Wrexham BC.**—Faience fireplace surrounds, gas cookers, etc. BS. 31, Chester-st.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

FEBRUARY 21.

†Braintree RDC.—Building and public works, annual contracts. C.

FEBRUARY 25.

Benfleet UDC.—5,600 yd. super r.c. and tarmacadam carriageways, 2,600 yd. super concrete footways, 1,400 yd. kerbing, 800 yd. SW sewers, 630 yd. foul sewers, etc., in various roads. E&S. Dep. £2.

Derbyshire CC.—Reconstruction of 570 lin. yd. of Derby/Heanor road, A.608, nr. Heanor Gate station. County S. Dep. £2.

Droitwich RDC.—6,300 yd. of 4-in. CI and 2-in. galvanised water mains, with valves, fire hydrants, etc., in parishes of Salwarpe and Martin Hussingtree. S. Dep. £2 2s.

Manchester CC.—5,500 sq. yd. bitumen macadam carriageway, 680 lin. yd. of 9 in. to 15 in. dia. sewer, etc., at Civic Centre road, Wythenshawe. City S.

FEBRUARY 26.

Stamford BC.—Sewage disposal works extension. Pick, Everard, Keay & Gimson, engrs., 6, Millstone-la., Leicester. Dep. £5 5s.

FEBRUARY 27.

Hove BC.—Making up roadway and other works in Newtown-rd. (length 1,200 ft.). Boro' S.

Huntingdonshire CC.—Fletton diversion, Oundle/Fletton/Whittlesey road, A.605.—1,670 lin. yd. of 24-ft. carriageway, etc., with r.c. bridge, 23 ft. 5 in. skew span and 40 ft. between parapets. County S. Dep. £5 5s.

Whiston RDC.—Making up of nine roads. S.

FEBRUARY 28.

†Malmesbury RDC.—3,200 lin. yd. of 4-in. dia. asbestos-cement water mains and booster station at Oaksey and Crudwell. Harvey, McGill & Hayes, Ccl's constg. engrs., 38, Market Place, Chippenham, Wilts.

MARCH 1.

Maidstone BC.—11,000 sq. yd. of new hardcore and tarmacadam carriageway, 1,300 lin.

yd. of foul sewers (mainly 9 in.), 1,300 lin. yd. SW sewers (9 in.-24 in.), etc., at Park Wood housing site. Boro' S.

Slough BC.—Road and sewerage works, 1957-58. Boro' E. Dep. £2 2s.

MARCH 2.

Isle of Ely CC.—Demolition of existing bridge and construction of new three-span r.c. bridge on March/Chatteris road, A.141. County S.

***Ripley UDC.**—Roads, sewers, etc., Woodside estate. S. Dep. £2 2s.

MARCH 4.

Bromley BC.—Widening and improvement of 600 yd. of Westerham-rd. Boro' E. Dep. £2 2s.

Bucks CC.—Road works, annual contracts. County S.

Leicester City C.—Wharf-st. redevelopment, road and sewer works. 14,000 sq. yd. approx. City S. Dep. £1 1s.

Manchester CC.—4,360 sq. yd. bitumen macadam carriageway, 676 lin. yd. 9 in.- 12 in. sewer, etc., at low-density development off Bowness-rd. and 800 sq. yd. carriageway and 140 lin. yd. of 9 in. sewer off Millbeck-rd. City S.

MARCH 5.

East Ham CBC.—Hutton housing scheme nr. Shenfield, Essex.—Road and sewer works. Boro' E. Dep. £2 2s.

MARCH 9.

Huddersfield CBC.—Deighton estate. Road works, 19,300 sq. yd. approx. with 2,900 lin. yd. 9-in. to 18-in. dia. sewers. Boro' E. Dep. £2 2s.

MARCH 11.

Buxton BC.—New r.c. reservoir of 75,000 gals. capacity at Coldspring. Edward Sandeman, Kennard & Ptnrs., Corpn's constg. engrs., 1, Victoria-st., SW1. Dep. £5 5s.

MARCH 12.

Norwich City Water Dept.—Excavating and refilling trenches for 24,000 yd. of water mains and reinstatement of 7,000 yd. of road and path surfaces. E&Mgr.

MARCH 19.

Morecambe and Heysham BC.—500 yd. of concrete block and mass concrete sea wall and promenade, with access ramps, steps and drainage works, from Battery to West End pier. Boro' E&S. Dep. £5.

GENERAL BUILDING WORK

(LONDON)

Kensington.—APPOINTMENTS.—The Housing and TP Com. recommends the appointment of Sir William Holford (F), MTPI as planning consultant for redevelopment of the first phase of the Kensal New Town area and as architect for the first four blocks, two of eleven storeys and two of four storeys which are proposed on the site. A. S. Wilson & Ptnrs., 8, Storeys-gate, SW1, are recommended for appointment as quantity surveyors. The two latter appointments are subject to the confirmation by the MH&LG of the compulsory purchase orders respecting the area.

Southwark.—SHOWROOM AND OFFICES.—Application has been made on behalf of the Sons of Temperance Friendly Society, for permission to erect a building for use as showroom and offices on the site of 102-103, London-rd., SE1. W. G. Edwards, Chartered Surveyor, 9-10, Blackfriars-rd., SE1, is acting for the developer.

Southwark. — OFFICE BUILDING. — Raglan Squire & Ptnrs. (F/A), 3, Hobart-pl., SW1, are the architects for a 12-storey building with basement to be erected on the sites of 2-8, Stamford-st., 2-16, Blackfriars-rd., and 1-5, Upper Ground, SE1, for the Central Mortgage Co.

Southwark.—OFFICES.—No objection is offered by the MBC to an application by F. S. Snow & Ptnrs., consulting engineers, Monro Building, Wellington-st., WC2, to erect a five-storey office building, with basement, on the site of 142, Southwark-st., SE1.

Wandsworth. — FLATS. — The MBC has approved sketch plans for two three-storey blocks of flats for erection fronting Keswick-rd. on the Portinscale-rd., Putney. housing site. Each block will contain four four-bedroom and two three-bedroom flats and the estimated cost is £32,080. The Boro' Engineer, Surveyor and Architect is P. V. Marchant, MICE, MIMunE.

(PROVINCIAL)

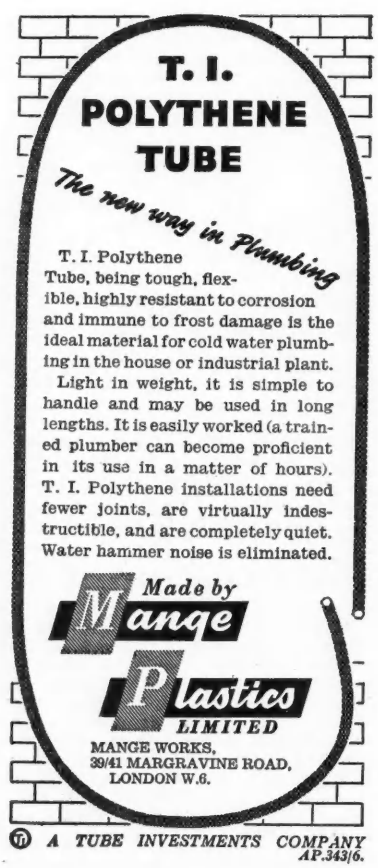
Bakewell.—UDC approved plans for new hall, stage, kitchen and laboratories at Lady Manners sch., for Derbyshire CC.

Birkenhead.—HC has approved in principle, proposals for 500 multi-storey dwellings at Woodchurch estate and has recommended that the housing programme should be accelerated to provide 500 dwellings yearly. Boro' A: T. A. Brittain (F).

Birmingham.—Building developments announced by Council of Birmingham University include new biology building to house seven departments, £1 million est., on which it is hoped to start work in two years. new physics and mathematics block, £300,000 est., to start next year and new chemistry building south of University-rd., £500,000 est., to start late this year.

Birmingham.—Regional Hospital Board proposes erection of five more ward blocks, central kitchen, records department, nurses' teaching department, resident surgeon's quarters and concert hall at Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, £750,000 est., also ward modernisation, £18,000 est. New outpatients and physiotherapy department, £30,000 est. and additional boilers and buildings, £15,000 est. at Wrekin Hospital, Wellington. Outpatients, physiotherapy, radiotherapy and x-ray departments, £120,000 est., pathological laboratory, £13,000 est., and boilerhouse, £3,500 est. at Royal Salop Infirmary. Nurses' home and training school, water drainage, sanitary annexes, 10 staff houses and admission unit, £1,044,000 est. at Shelton Hospital, Shrewsbury. Chronic sick unit and nurses' home, £200,000 est. at Oswestry and District Hospital. Outpatient and casualty department and chronic sick block, £70,000 est. at Bridgnorth and South Shropshire Infirmary.

Bradford.—Plans submitted to TC: Textile mill on site bounded by Carr-la., King-st. and New Works-rd., Low Moor, for John Reddihough, Ltd. A: W. C. Ayers, Market-st., Bradford.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Buxton.—Derbyshire CC proposes erection of remote control radio station on site nr. Cat and Fiddle Inn.

Darlington. — TC seeks loan sanction for £516,750 for 379 houses and £73,377 for roads and sewers at Skerne Park estate.—Ccl. is to acquire site of 'Dolphin' Inn, Horsemarket, in connection with scheme for new municipal buildings. Borough A: E. A. Tornbohm (A), AMTPI, Central-bldgs., Darlington.

Hebburn, Co. Durham.—UDC to build new garages and workshops at Glen-st. depot, £14,600 est.

Huddersfield.—Leeds Regional Hospital Board proposes erection of new hospital at Green Lea, Lindley. Site works to commence in March.

Leigh.—Lancs EC proposes purchase and adaptation of Pennington CofE Mission, Wilkinson-street, for school purposes, £15,521 est.

Londonderry.—Carbide Industries, Ltd., to build acetylene factory on 50 acre-site.

Nelson.—Lancs. EC preparing quantities for Phase 2 of College of Further Education at Reedyford, £115,520 est.

Northallerton. — Northallerton Memorial Swimming Baths Committee now has more than £10,000 in hand towards new swimming baths, and it is hoped to start work on scheme shortly.

Oakengates.—RDC proposes 150 houses at Ketley Bank site.

Ormskirk.—Burscough Old Aged Pensioners' Assn. proposes erection of new club premises, Lord-st., Burscough.—Ormskirk Photo Services, Ltd., propose erection of light industrial factory at Queens-st. Inquiry held.

Runcorn.—General Chemicals Division of I.C.I. to build extensive new offices on 30 acre site between Heath-rd. South and golf course, Upper Runcorn. A: Frederick Gibberd, CBE, FRIBA, MTPI, 8, Percy-st., W1.

Saddleworth.—West Riding CC proposes improvements at Greenfield St. Marys CofE sch.

South Bank-on-Tees.—North-Eastern Breweries, Ltd., The Brewery, Sunderland, are seeking permission to erect licensed premises at Skippers-la. A: Kitching & Co. (A/L), 21. Albert-rd., Middlesbrough.

Stokesley.—J. Nimmo & Sons, Ltd., brewers, Castle Eden, Durham, have had plans approved for new licensed premises at Marten.

Stretford.—LEA has requested M of E to place second phase of extensions at Stretford technical college on major further education building programme for 1959/60.

Sunderland.—EC recommends appointment of S. W. Milburn & Ptnrs. (F/F), 9, Esplanade, as A for extensions proposed at Bede grammar sch.

Sunderland.—Final plans have been prepared by Borough Architect (H. C. Bishop), Grange-ho., Stockton-rd., for proposed branch technical college nr. Grange Church, for EC.—Committee proposes including in its 1959-60 building programme £280,000 scheme for new technical college, to include residential accommodation for students.

Sunderland.—EC may commence work in March, 1958, on construction of town's first comprehensive school on 10 acres site at Seaburn. Two sec. schs., to cost £170,000 and £157,336 respectively, are to be built shortly. Boro' A: H. C. Bishop (A), Grange-hse., Stockton-rd., Sunderland.

Sutton Coldfield.—Plans submitted to BC:—16 houses off Walmley Ash-rd. for A. A. Fleming & Co., 61, High-st., Erdington; extensions to factory at Forge-la., Minworth, for Metal and Alloys (Birmingham), Ltd.; 12 houses off Banners Gate-rd. for G. E. Clarke, Ltd., 280, Chester-rd. North.

Tynemouth.—Stella Building Products, Ltd., have dropped their plan for building new factory at West Chirton, and propose instead building new premises near Percy Main. Work will start shortly. A: Henry Gatoff (A), AMTPI, 51, Grainger-st., Newcastle-on-Tyne.

Wakefield.—West Riding CC proposes first instalment of new five-storey building at Technical College in 1957/8 programme.

Wigan.—Heyes & Co., Ltd., Water Heyes Electrical Works, propose development and re-equipment of their premises.—TC proposes erection of 17 police houses.

Wolverhampton.—EC proposes new chemistry block, £24,000 est. and minor building works £6,550 est., at Wolverhampton and Staffordshire College of Technology.

Worcs.—EC approved inclusion of following schools in 1957/8 programme:—Stourbridge, Wollaston Farm county infants, £42,300 est.; Oldbury sec. tech., £115,000 est.; completion of Wythall county sec., £35,000 est.

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Aberdeen.—Showrooms and offices for Webster Tyre Co., Ltd. A: Gordon S. Esselmont (A), 226, Union-st., Aberdeen. Building works. *Peter Cameron & Co., Ltd., 347 to 351, George-st.; plumbing, etc., *A. B. Robertson & Son, Ltd., 11, Don-st.; steel construction, *George Cassels & Sons, Ltd., 600, King-st.; plaster, etc., works, Arthur Frazer, Ltd., 8, Froghill-rd.; flooring, *James Stewart & Son, Ltd., 141, King-st.; heating engineering, etc., *A. B. Robertson & Son, Ltd., 11, Dee-st.; electrical eng. works, *George Angus, 11, Willowdale-pl.; painting, etc., *James Chapman & Co., 21, Thomson-st.

Ayrshire.—New junior sec. pro. sch. at a Patna site. A: Edward A. Darley, 130, High-st., Ayr. QS: Moffat & Wright, FRICS, 31, The Sandgate, Ayr. Steel construction, *Lambhill Ironworks, Ltd., Strachur-st., Maryhill, Glasgow, NC2; building, etc. *Thomas Macwhirter & Sons, Ltd., Elm Park-st., Ayr.

Bethnal Green.—One 16-storey block and two 6-storey blocks in r.c. frame construction, comprising 160 flats and maisonettes at Claredale-st. for MBC. A: Fry Drew Drake & Lasdun (F/F), 63, Gloucester-pl., Portman-sq., W1. *Wates, Ltd., Norbury, SW16. £502,000 approx.

Bingham.—New police station for Notts. CC. *H. Leach & Sons, 1, Westdale-la., Carlton. £20,685.

Birmingham.—Following for EC:—Erection of Sheldon Hall mixed mod. sch. *C. Bryant & Son, Ltd., 65, Whitemore-rd. £175,975. Erection of Kings Norton mixed mod. sch. *Geo. Wimpey & Co., Ltd., London. £165,537. Extensions at Wheelers-la. mod. boys' sch. *Frank Davis (Builders), Ltd., College-rd., Birmingham 13. £49,963. Erection of Turves Green Further Education Centre. *John Dallow & Sons, Ltd., John-st. Birmingham. £28,387. Erection of Haunch-la. nursery sch. *A. Pearce & Sons (Building Contractors), Ltd., Victoria-st. £20,997.

Birmingham.—Two 6-storey blocks of maisonettes, one 4-storey block of maisonettes and one 8-storey block of flats at Bangham Pit Farm Estate for City C. City A: A. G. Sheppard Fidler (F) AMTPI. Constg. engrs.: W. V. Zinn & Associates. *Wates, Ltd., Norbury, SW16. £293,674 approx.

Bletchley.—Six houses at Castle's estate, for UDC. E&S: J. F. Smithie. *Drabble Construction, Ltd., 44, Aylesbury-st., Bletchley (subject to MH&LG approval). £10,150.

Bridgwater.—Six houses, two flats and two bungalows on New Inn site, Cannington for RDC. *G. & S. Bryant. £15,580.

Bury.—Two-class instalment of proposed Gigg jun. sch. for TC. ‡Parker & Calvert, Ltd., £11,222.

Dundee.—Second development of Hilltown housing scheme of three-storey flats. City A: Robert Dron (A), ARIAS. Building works, *Bent Bros., Ltd., Dowanfield Works, Dundee, £25,521; joinery, etc., *James Scott & Sons (Joiners), Ltd., 10, Fyffe-st., £10,387.

Durham.—30 houses at Leamside for RDC. Housing A: J. F. Willis, Byland Lodge, Durham. *Direct labour. £48,940.

Croydon.—New water tower at Foxearth Wood for CBC. E: Wm. C. Knill, BSc, MICE, Water E & Mgr., Croydon, in collaboration with the Indented Bar & Concrete Engineering Co., 171, Victoria-st., SW1. *A. J. Wait & Co., Ltd., Wellington-cres., New Malden, Surrey. £20,000.

Faversham.—12 flats and 42 houses (3 contracts) at Lower-rd. estate for BC. E&S: A. C. E. Richardson, Tyler & Sons, Ramsgate (two contracts only), £45,807; Costains, Canterbury, £71,537; B. R. Rigden, Whitstable, £67,188; Bowell, Canterbury, £66,850; W. H. Holden, Rainham, Kent, £66,771; G. S. Joiner & Sons, Ltd., Herne Bay, £64,917; *E. M. Brookes, Charing, Kent, £60,423.

Fife.—Six houses at Pitlessie fourth development for CC. County A: R. S. Lawrie (A), County-bldgs., Cupar. *R. S. Wilson (Builders), Cupar. £10,958.

Glasgow.—420 Crosswall type houses at Castlemilk Unit No. 5 placed with the Scottish Housing Group of Contractors as follows:—*John Lawrence (Glasgow), Ltd., 152 houses, £256,912; *Melville Dundas & Whitson, 108 houses, £185,623; *James Crawford & Sons, Ltd., 160 houses, £273,420.

Glasgow.—24 three-storey, three-room flats and six flats for single people at Garthamlock and 36 flats for aged persons at Holinbyre-terr., Castlemilk. *Robert W. Stewart & Co., Ltd., £46,569 and £55,967.

Glasgow.—First of two half-mile tunnels under River Clyde between Whiteinch and Linthouse for City C. City E: James M. Riddet, MICE. Constg. engrs.: Sir William Halcrow & Ptnrs., 47, Park-la., W1. *Charles Brand & Son, Ltd., London. £5¼ million (approx.).

Hexham.—42 houses at Wylam for RDC. *W. Leech (Builders), Ltd., Clayton-st., Newcastle-on-Tyne.

Hove.—Four-storey block of 57 flats for Lancaster Court (Hove), Ltd. A: G. Kember Isted (A), Hove Park-gdns. *R. Green (Brighton), Ltd. £120,000.

Lanarkshire.—36 houses at Calderwood, and Springfield-rd. development sites. A: Samuel MacColl (F), 23, Beckford-st., Hamilton. *Maclean & Co., Ltd., Motherwell. £54,795.

Lancs.—Following for CC:—Erection of Phase I of Orrell the Abraham Guest county sec. sch. *Clough & Gaskell, Ltd., Wigan. £110,320. Phase II of Kirkby Park Brow county sch. *R. Costain & Sons, Ltd., Liverpool. £71,990. Kitchen and dining-room/lecture hall at Newton-le-Willows College of Further Education. *H. Taylor & Co. (Warrington), Ltd. £10,423.

¶London (Air Ministry).—New works contracts to value of £500 or over for week ended February 8:—*Painting work:* Ballykelly, N. Ireland, James Garvey & Co., 111/113, Divis-st., Belfast; Leuchars, Fifeshire, W. C. Simpson & Son, Ltd., 30, Haymarket-terr., Edinburgh. *Artificers work:* Church Lawford, Warwick, Simcock & Usher, Ltd., St. Leonards-rd., Northampton. *Civil engineering:* London Airport, Middx., Percy Bilton, Ltd., Bilton-hse., 113, Park-st., W1.

¶London (MoW).—Contracts placed for week ending February 2:—*Berkshire:* Radiation Laboratories, Building 500, Wantage, erection of laboratories and offices, W. E. Chivers & Sons, Ltd., Devizes, Wilts. *Buckinghamshire:* Joint Services Staff College, Latimer-hse., Chesham, new NAAFI staff quarters, J. Mead, Ltd., 176, Berkhampstead-rd., Chesham, Bucks; Post Office Sorting Office, Slough, new cycle shelter, J. Deverill, Ltd., 3, The Grove, Slough, Bucks. *Glamorganshire:* Post Office Engineering Depot, Western-ave., Cardiff, erection of cycle shelters; laying proposed hardstanding and concrete verges, Davies & Davies, 206, Penarth-rd., Grangetown, Cardiff; Head Post Office and Telephone Exchange, The Broadway, Pontypridd, alterations and extensions, Hinkins & Frewin, Ltd., High Cross, Rogerstone, Newport, Mon. *Gloucestershire:* Post Office, Filton, Bristol, extensions and alterations to telephone exchange, Benson Bros. (Bristol), Ltd., 117, Ashley Down-rd., Bristol, 7. *Lancashire:* Ministry of Supply Storage Depot, Ulnes, Walton, waterproofing flat roofs to storage sheds, H. R. Vaughan & Co., Ltd., Leighton-st., Preston. *London:* Chester-rd., Regent's Park, NW1, erection of superintendent of Parks' depot, E. J. Lacy & Co., Ltd., Steele-rd., NW10. *Midlothian:* National Library of Scotland, George IV Bridge, Edinburgh, adaptations to form new map room, James Turner & Co., Ltd., Westfield-st., Edinburgh, 11. *Northamptonshire:* Thrapston, erection of automatic telephone exchange, A. J. G. Potter & Sons, Ltd., High-st., Stanwick, Wellingborough. *Nottinghamshire:* Welbeck Abbey College, Retford, erection of housemasters' flats, A. Richmond & Son, Ltd., West-st., Retford. *Yorkshire:* York-rd., Leeds, erection of postmen's delivery office, W. G. Birch (Harrogate), Ltd., Montpelier-hse., Harrogate; Head Post Office, Ropergate, Pontefract, alterations and adaptations, A. Clifford Green, Ltd., 21, Market-st., Wakefield. *Warwickshire:* Telephone Exchange, Stechford, Birmingham, erection of extension, T. Bates & Son, Ltd., Warwick-rd, Kenilworth.

¶London (War Dept.).—Works contracts placed in week ended February 1:—*Dorset:* electrical machinery, Engineering Services Installations, Ltd., London. *Essex:* building, T. J. Evers, Ltd., Colchester. *Hampshire:* painting and decorating, Donald Humberstone & Co., Ltd., Louth. *Kirkcudbrightshire:* painting, Reid Bros., Carlisle. *Surrey:* building, Sherfields (Farnham), Ltd., Farnham. *Yorkshire:* heating, E. Dixon Barker & Son, Ltd., West Hartlepool; miscellaneous, Arthur Sanderson (Builders), Ltd., *Hull:* flooring, Walter Thompson (Contractors), Ltd., Northallerton.

Manchester.—14 maisonettes at Pembridge-rd., Charlestown, three aged persons' bungalows at Langley estate and 36 maisonettes at Tipping-st., Ardwick, for TC. *Direct labour.

Middlesbrough.—New building Green-la. for College of Art for CBC. A: J. G. L. Poulson (L), 29, Ropergate, Pontefract. *Sinton, Thompson & Ptnrs., Ltd., Dock Meadow-dr., Lanesfield, Wolverhampton. £62,733.

Newcastle-on-Tyne.—New Kenton county prim. sch. (No. 2) for EC. A: The Design Partnership, 27, Ridley-pl., Newcastle-on-Tyne. QS: J. W. Summers & Ptnrs., 33, Jesmond-rd., Newcastle. *A. Anderson (Contractors), Ltd., 1, Stanmore-rd., Newcastle-on-Tyne. £134,670.

Newcastle-on-Tyne.—Structural steel frame for proposed West End sec. tech. boys' sch. for EC. *Redpath, Brown & Co., Ltd., Milburn-hse., Newcastle. £27,322.

Newcastle-on-Tyne. — New Presbyterian church at Montagu estate, Kenton. A: A. K. Tasker & Austin Child (F/F), 25, New Bridge-st., Newcastle. *T. E. Ridley, Back High-st., Gosforth. £14,000.

Newcastle-under-Lyme.—Extensions at University College of North Staffs, Keele, for Governors. *Naylor & Nutt, Coronation-st., Tunstall, Stoke-on-Trent.

Nottingham.—New central ambulance station at Beechdale-rd. for TC. *Frost & Leatherhead, Ltd., Dame Agnes-st., Nottingham. £53,598.

Scottish Special Housing Association, Ltd.—Contracts placed (all trades) November 21, 1956 to January 23, 1957: Castle-ave., Cockenzie, 30, Dunedin, *Crudens, Ltd., Olive-bank, Musselburgh. Tollcross, Alva, 40 Weir, *Weir Housing Corpn., Ltd., Calder-st., Coatbridge. Wellington-ave., Wick, 34 Dunedin, *Alex Hall & Son, Ltd., Aberdeen Faifley, Section G1, Clydebank, 118 Weir, *Weir Housing Corpn., Ltd., Calder-st., Coatbridge. New England Saltcoats, 60 Weir, *Weir Housing Corpn., Ltd., Calder-st., Coatbridge. Melrose-rd., Galashiels, 24 'J' Dunedin, *Crudens, Ltd., Olive-bank, Musselburgh, Tollcross, Alva, 40 Weir; Faifley, Clydebank, 64 Weir flats and 54 Weir cotts., New England, Saltcoats, 60 Weir, *Weir Housing Corpn., Coatbridge. Wester Langlee, Galashiels, 24 Dunedin Type 'J'; Castle-ave, Cockenzie, 30 Dunedin Type 'J,' *Crudens, Ltd., Olive-bank, Musselburgh. Muirhouse, Edinburgh, 136 N/F flats, *Direct

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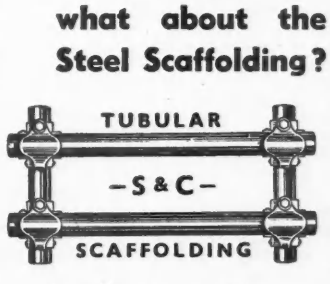

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Sittingbourne and Milton.—38 houses, Staplehurst housing estate, for UDC. E&S: A. W. Lloyd, AMICE, MIMunE. QS: Rider Hunt & Ptnrs., 118, High-st., Gillingham. *T. R. Swann & Son, Ltd., Thomas-rd. Works, Sittingbourne. £56,241.

South Shields.—Alterations to premises at Fowler-st. for G. K. Lee, Ltd., drapers and furnishers. *J. Huntley & Son, Marion-st., Sunderland.

South Shields.—Subtrades let by EC in connection with building of new Mortimer county sec. sch. General contractors: Carruthers & Son, 1, Heugh-ter., South Shields. Heating installation, *Elsy & Gibbons, Ltd., Havelock-st., South Shields. £23,416. Electrical installation, *A. Robertson, Ltd., Westoe-rd., South Shields. £12,754.

Southwark.—20 flats, 15 shops and maisonettes, one kiosk, 33 garages and storage shed at Congreve-st. housing scheme, Stage III, for MBC. E&S: R. A. Miller, AMICE, AMIMunE. Patman & Fotheringham, Ltd. L. & W. Whitehead, Ltd. Rowley Bros., Ltd. Wilson Lovatt, Ltd. Gee, Walker & Slater, Ltd. M. J. Gleeson (Contractors), Ltd. ‡William Willett, Ltd.

Stanley, Co. Durham.—94 houses at Hill Top site, East Stanley, for UDC. Plans by S. *G. M. Pearson & Son, Front-st., Hetton, Co. Durham.

Stone.—Eight houses and two bungalows at Norton Bridge for RDC. *H. Haynes, Haynergr., Weston Coyney, Stoke-on-Trent. £14,230.

Sunderland.—New Broadway county sec. mod. mixed sch. for EC. Boro' A: H. C. Bishop (A). ‡W. D. & R. Allison & Sons, Whitburn. £157,336.—New Castle View county sec. mod. mixed sch. ‡Middleton & Co. (Blackpool), Ltd. £169,996.

Thurso.—150 houses and 48 three-storey flats for occupation by staff of Downreay atomic energy station, for Atomic Energy Authority. *Alexander Hall & Son (Builders), Ltd. £500,000.

Tynemouth.—New sec. tech. sch. at Preston Village, North Shields, for EC. A: Geo. H. Gray & Ptnrs. (F/A), Camden-st., North Shields. *J. H. Rogers, Regent-ter., North Shields. £190,983.

Tynemouth.—Builders' work in connection with erection of prefabricated classroom block at Murton prim. sch. for EC. A: J. Smeds (A), 56a, Camden-st., North Shields. *R. Jordan, Back Queen Alexandra-rd., North Shields.

Wakefield.—Erection of Kettlethorp junior sch. for City C. City E: J. N. Sedgwick. *H. Hainsworth (Wakefield), Ltd., Wakefield.

Ware.—16 Drury houses at Cromwell-rd. estate, for UDC. *Drury & Co., Ltd., £23,992.

Weymouth and Melcombe Regis.—110 houses, Littlemoor for BC. Boro' E. *S. W. Foster, Ltd., Radstock. £175,000.

Weymouth and Melcombe Regis.—50 flats at Chapelhay for BC. Boro' E: A. J. Wallis, BSc, AMICE, AMIStructE, MIMunE. *Rawlings (Builders), Ltd., New Quay-rd., Hamworthy, Dorset. £83,980. (Subject to approval of MH&LG.)

Weymouth and Melcombe Regis.—12 flats at Chapelhay for BC. Boro' E. *W. G. Taylor & Sons, Weymouth. £23,152.

Workington.—Additions to St. Mary's Church, and erection of church hall. A: N. M. Phillips (A), Oxford-st., Workington. *Thomas Armstrong, Ltd., Cockermouth, Cumberland. £20,000.

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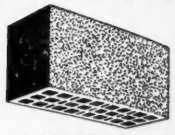

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